

CALIFORNIA REGIONAL WATER QUALITY CONTROL REGIONAL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2005-0092

NPDES NO. CA0082708
WASTE DISCHARGE REQUIREMENTS
FOR
ROCKWELL INTERNATIONAL CORPORATION
AND
PORTERVILLE UNIFIED SCHOOL DISTRICT
GROUNDWATER CLEANUP SYSTEM
TULARE COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. Rockwell International Corporation, a Delaware corporation, and the Porterville Unified School District (School District) (hereafter jointly referred to as Discharger) submitted a Report of Waste Discharge (RWD) on 6 December 2000 to discharge treated groundwater under the National Pollutant Discharge Elimination System (NPDES) from a groundwater cleanup system (GWCS).
2. Waste Discharge Requirements (WDRs) Order No. 96-106 (NPDES permit No. CA0082708) was adopted on 3 May 1996 for discharge of treated groundwater from the GWCS to the Pioneer Ditch Pipeline. An administrative continuance extended Order No. 96-106 beyond the expiration date of 1 May 2001.
3. The subject property is at 914 West Pioneer Avenue, two miles northeast of the City of Porterville, within Section 22, T22S, R27E, MDB&M, as shown on Attachment A, a part of this Order.
4. In 1956, Rockwell International Corporation, known as Rockwell Manufacturing Company at the time, leased the property and began manufacturing water and gas meters. In 1971 the Rockwell International Corporation purchased the property. During 1971 through 1982, INCOM used the property for manufacturing marine cable. Mr. Albert Levinson, defined by Order No. 96-106 as a Discharger, purchased the site in 1983. In 2000, the School District purchased the property from the Levinson Estate. The School District is currently converting the property to an adult education facility. Rockwell Manufacturing Company and Rockwell International Corporation both contributed to the groundwater pollution. Rockwell Manufacturing Company, Rockwell International Corporation, and INCOM are conducting the cleanup.
5. In May 1991, the Discharger installed a GWCS consisting of an extraction well (REX-1), a scale inhibitor system, an air-blower and packed tower aeration air-stripping tower (PTA), and dual-vessel vapor phase granular activated carbon (GAC) adsorbers. In June 1998, the Discharger removed the GAC adsorbers because the San Joaquin Valley Air Pollution Control District allowed for the direct discharge of the air-stripper vapor without GAC polish. In 2001, the Discharger added an additional extraction well (REX-2). In 2002, the Discharger replaced the PTA with a low profile tray design

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air-stripper (model No. STAT 180). The low-profile tray air stripper uses counter-current flow to remove dissolved volatile organic compounds (VOCs) from groundwater as it is sprayed over and trickles through a five-tray system. A scale inhibitor prevents formation of inorganic deposits in the air-stripper. The scale inhibitor that is currently used is a polyacrylate additive. VOCs removed from groundwater are converted into a vapor phase and discharged to the atmosphere.

6. Treated groundwater is collected in a sump at the base of the GWCS low-profile tray air stripper and pumped to the Pioneer Ditch Pipeline, as shown in Attachment A. The discharge is identified below by a serial number:

001 - The Discharge point is about 220 feet east of the northeastern corner of the property. The outfall is in Section 14, T21S, R27E, MDB&M, as shown on Attachment A (Latitude 36° 5' 41" North, Longitude 119° 2' 23" East).

7. According to the RWD, quarterly monitoring submitted by the Discharger, United States Army Corps of Engineers, and data from other Regional Board sources, the following conditions are typical for Lake Success where flows are diverted to the Pioneer Ditch Pipeline:

<u>Constituent</u>	<u>Lake Success</u>	<u>Units</u>
Temperature	60.0	°F
pH	7.5	pH Units
Conductivity @ 25°C (EC)	70.2 ¹	µmhos/cm
Total Dissolved Solids	39	mg/L
Dissolved Oxygen	14.3	mg/L

¹ Calculated value based on the empirical assumption that EC ≈ 1.8 * TDS

8. According to the RWD and quarterly monitoring data submitted by the Discharger for the period May 1994 through January 2004, the following maximum concentrations of constituents in groundwater pumped to the GWCS were reported:

<u>Constituent</u>	<u>Groundwater</u>	<u>Units</u>
Temperature	23.8	°C
pH	8.3	pH Units
EC	982	µmhos/cm
Total Dissolved Solids	540.1 ¹	mg/L
Nitrate/Nitrite-N	13	mg/L
Sulfate	28	mg/L
Barium	240	µg/L
Magnesium	38	mg/L

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Zinc	67	µg/L
Chloroform	0.5	µg/L
1,1-Dichloroethane (1,1-DCA)	15.8	µg/L
1,2-Dichloroethane (1,2-DCA)	27	µg/L
1,1-Dichloroethylene (1,1-DCE)	140	µg/L
Tetrachloroethylene (PCE)	10.1	µg/L
1,1,1-Trichloroethane (1,1,1-TCA)	4.4	µg/L
1,1,2-Trichloroethane (1,1,2-TCA)	0.16	µg/L
Trichloroethylene (TCE)	8.3	µg/L
Methylene Chloride	1.8	µg/L
Trichlorofluoromethane	1.2	µg/L

¹ Calculated value based on the empirical assumption that TDS \approx 0.55 * EC.

9. The RWD and quarterly monitoring data for the period May 1994 through January 2004 submitted by the Discharger describes the maximum concentrations in the discharge as follows:

Average Flow: 56 gallons per minute (gpm)

Maximum Flow: 100 gpm

<u>Constituent</u>	<u>Units</u>	RWD Maximum Effluent Concentration	MRP Maximum Effluent Concentration
		<u>Reported</u>	<u>Reported</u>
Biochemical Oxygen Demand ¹	mg/L	<5.0	NS ²
Chemical Oxygen Demand ¹	mg/L	<10.0	NS ²
Total Organic Carbon ¹	mg/L	0.75	NS ²
Total Suspended Solids ¹	mg/L	<5.0	NS ²
Ammonia ¹	mg/L	0.25	NS ²
Temperature (winter)	°C	19	17.2
Temperature (summer)	°C	24	27.5
pH	Std units	7.6 – 8.5	6.7-8.7
EC	µmhos/cm	NS ²	985
Nitrate/Nitrite-N ¹	mg/L	13	NS ²
Sulfate ¹	mg/L	28	NS ²
Barium ¹	µg/L	240	NS ²
Magnesium ¹	mg/L	38	NS ²
Zinc ¹	µg/L	67	NS ²

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<u>Constituent</u>	<u>Units</u>	RWD Maximum Effluent Concentration <u>Reported</u>	MRP Maximum Effluent Concentration <u>Reported</u>
Chloroform ⁵	µg/L	<0.5	ND ³
1,1-DCA ⁵	µg/L	<0.5	5.1
1,2-DCA ⁵	µg/L	<0.5	ND ³
1,1-DCE ⁵	µg/L	<6.0	42
PCE ⁵	µg/L	<5.0	2.6
1,1,1-TCA ⁵	µg/L	<200	ND ³
1,1,2-TCA ⁵	µg/L	<5.0	ND ³
TCE ⁵	µg/L	<5.0	2.1
Bis(2-ethylhexyl) phthalate ⁵	µg/L	BA ⁴	ND ³
Carbon tetrachloride ⁵	µg/L	BA ⁴	ND ³
Methylene Chloride ⁵	µg/L	BA ⁴	1
Trans-1,2-DCE ⁵	µg/L	BA ⁴	ND ³
Cis-1,2-DCE ⁵	µg/L	BA ⁴	ND ³
Trichlorofluoromethane ⁵	µg/L	BA ⁴	ND ³

¹Based on one sampling event

² NS=Not Sampled

³ ND=Nondetect

⁴ BA=Believed Absent

⁵ Effluent limitation established in previous Order 96-106 for this constituent

10. Influent and effluent monitoring data submitted by the Discharger for the period 1998 to 2004 as required by the previous Order No. 96-106 are summarized in Tables 1 and 2 of the Information Sheet, a part of this Order.
11. Pioneer Ditch Pipeline is a 24-inch diameter, subterranean, pressurized pipeline used to convey irrigation and recharge waters from Success Dam, east of Porterville, to agricultural lands along its eleven-mile length. The pipeline terminates approximately two miles north of the Porterville Unified School District. About one-third of a mile from its terminus, surplus water flows from the Pioneer Ditch Pipeline into an unlined cross connection, approximately one mile long, which connects with Canal No. 4, operated by the Lower Tule River Irrigation District. The discharge to the Pioneer Ditch Pipeline is currently distributed by the Lower Tule River Irrigation District for irrigation.

12. Canal No. 4 of the Lower Tule River Irrigation District conveys irrigation waters between Porterville and Corcoran. As part of this conveyance, the water flows through a segment of the North Fork of the Tule River, which is approximately eight miles in length. This segment begins approximately 11.5 miles west of Pioneer Ditch in the center of the SE 1/4 of Section 2, R25E, T21S, MDB&M, and ends in the northern part of Section 22, R24E, T21S, MDB&M. It is likely that treated groundwater is discharged into the North Fork of the Tule River, a water of the United States.
13. During normal conditions, flow in the Pioneer Ditch Pipeline is from Success Dam “downstream” towards the School District property. However, in order to supply agricultural water to farms “upstream,” occasionally the Lower Tule River Irrigation District may adjust the pressure of the Pioneer Ditch Pipeline, to reverse the direction of flow. During periods of low demand for irrigation water, flow in the Pioneer Ditch Pipeline may be dominated by treated groundwater from Discharge No. 001. Occasionally, water from the Pioneer Ditch Pipeline may be subject to unauthorized noncontact water recreational use within the boundaries of the Lower Tule River Irrigation District during periods of reverse flow in the Pioneer Ditch Pipeline.
14. Two aquifer zones exist in the upper 160 feet of alluvial sediments. The upper aquifer originates about 50 feet below ground surface (bgs) and extends to about 100 feet bgs. A lower aquifer occurs below a depth of about 130 feet and ranges in thickness from about five to thirty feet in the vicinity of the property. The two aquifers are separated by a laterally extensive aquitard comprised of stiff cohesive clay and sandy clay. The plume of VOCs is within the upper aquifer and roughly 30 feet thick, 550 feet wide, and 900 feet long.
15. The upper aquifer contains moderately permeable sand lenses interspersed with lower permeability clayey materials. It is comprised of sand, sandy gravel, silty clay, clayey sand, clay, and sandy clay. The Discharger described the upper aquifer by segregating it into shallow and basal zones. The shallow zone extends from the water table to a depth of about 80 feet bgs. Sediments encountered in the shallow zone range from clayey sand to sandy clay and occur in laterally discontinuous lenses. The basal zone extends from the bottom of the shallow zone, at a depth of approximately 80 feet, to the top of the upper aquitard, at about 100 feet bgs.
16. Groundwater moves northeasterly with a hydraulic gradient ranging from about 0.002 to 0.07. Background groundwater quality is good. Groundwater samples collected from monitoring wells at the City of Porterville wastewater treatment facility show that in 1995 groundwater EC ranged from about 300 to 500 µmhos/cm. However, PCE is intermittently detected in background wells.

17. Investigation of the upper aquifer in the vicinity and downgradient of the property defined the lateral extent of the pollution. In 1991, two private wells outside of the property boundaries were identified as potential conduits to the lower aquifer and have since been properly abandoned.
18. The extraction wells are constructed to a depth of 100 feet bgs. REX-1, in the northeast corner of the property, is perforated the entire saturated thickness of the upper aquifer (about 30 feet). REX-2, in the center of the property near the northeast corner of the Plant Building, is also perforated the entire saturated thickness of the upper aquifer (about 40 feet). The Discharger operates the GWCS at a continuous extraction rate of 75 to 125 gallons per minute (gpm). The GWCS is designed for a continuous extraction rate up to 200 gpm.
19. As the Discharger conducts required groundwater monitoring, it typically generates less than 1,000 gallons of purged well water each quarter. The concentration of VOCs in the purge water may exceed the limits prescribed by Effluent Limitation B.2. Purge water from monitoring well sampling is treated with a portable GAC adsorber and disposed to land near the well and/or transported to the GWCS for subsequent treatment and disposal.
20. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives (WQOs), and contains implementation plans and policies for protecting waters of the Basin. The Basin Plan includes plans and policies of the State Water Resources Control Board (SWRCB) incorporated by reference, including SWRCB Resolution No. 68-16 "Statement of Policy With Respect to Maintaining High Quality Waters in California" (hereafter Resolution 68-16 or the "Antidegradation" Policy). Pursuant to the California Water Code (CWC), §13263(a), waste discharge requirements must implement the Basin Plan.
21. The subject property, GWCS, and the discharge point are within the Tule Delta Hydrologic Area (No. 558.20), as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986, and within the South Valley Floor Hydrological Unit, Tule Delta Hydrologic Area (No. 558.20) and the Tule Groundwater Basin (Detailed Analysis Unit No. 243).
22. The Basin Plan designates the following beneficial uses for the Tule River:
 - municipal and domestic supply (MUN);
 - industrial service (IND);
 - industrial process and process supply (PRO);
 - agricultural supply (AGR);
 - water contact recreation (REC-1);
 - non-contact water recreation (REC-2);

- groundwater recharge (GWR);
- warm freshwater habitat (WARM);
- wildlife habitat (WILD)

Discharges from the GWCS to Pioneer Ditch Pipeline and Canal No. 4 must be protective of the designated beneficial uses of the Tule River. For the purposes of this permit, the beneficial uses of the Tule River are considered applicable to Pioneer Ditch Pipeline and Canal No. 4.

23. The Basin Plan designates the following beneficial uses of groundwater in the Tule Groundwater Basin: MUN, IND, PRO, and AGR and wildlife habitat (WILD), except where lesser beneficial uses are specifically designated in the Basin Plan.
24. The Basin Plan contains a narrative water quality objective for toxicity which states;

“Ground waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with the designated beneficial use(s). The Regional Board will also consider . . . numerical criteria and guidelines for toxic substances developed by the State Water Board, the California Office of Environmental Health Hazard Assessment, . . . and other appropriate organizations to evaluate compliance with this objective.”
25. USEPA adopted the National Toxics Rule (NTR) on 5 February 1993 and the California Toxics Rule (CTR) on 18 May 2000. When combined with the beneficial use designations in the Basin Plan (Finding No. 22) these rules contain water quality standards applicable to this discharge. The State Water Resources Control Board, on 26 April 2000 adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (hereafter referred to as the Implementation Policy) that contains requirements for implementation of the NTR and the CTR.
26. In accordance with the Implementation Policy, on 8 May 2001 and 23 October 2001 the Discharger reported the analytical results of the discharge and the receiving water for 126 priority pollutants, pH, hardness, and flow for low and high flow conditions, respectively. The Discharger also submitted analytical results of the discharge for each of the 17 TCDD congeners listed in Table 4 of the Implementation Policy.
27. The Implementation Policy requires the Regional Board to use all available, valid, relevant, representative information to determine whether a discharge may: (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above any applicable priority pollutant criterion or objective.

28. In order to implement the applicable water quality objectives the most stringent numerical criteria available should be used to determine water quality based effluent limits (WQBELs) for each of the pollutants. The criteria used for each pollutant are summarized in Table 3 of the Information Sheet, a part of this Order.
29. Analyses of the discharge, as shown in Tables 1 and 2 of the Information Sheet, indicate 1,1-DCE, 1,1-DCA, 1,2-DCA, PCE and TCE are present in groundwater (i.e. influent to the GWCS) at concentrations that exceed the criteria presented in Table 3 of Information Sheet. Although the Discharger's GWCS has performed reliably, similar systems have experienced failures or operational errors that have resulted in pass through of untreated or partially treated effluent resulting in exceedances of permit limits. A failure of the GWCS or operational errors could result in a similar discharge of partially treated or untreated effluent exceeding applicable water quality criteria. Thus, each of these constituents has a reasonable potential to cause or contribute to an excursion above each respective applicable priority pollutant criterion or objective. Water quality-based effluent limitations developed for each of these pollutants in accordance with the Implementation Policy are shown in Table 4 of the Information Sheet.
30. The SIP data provided by the Discharger as described in Finding 26, indicate maximum concentrations of arsenic, chromium III, chromium VI, mercury, selenium and zinc in the discharge that do not exceed criteria contained in the CTR. However, given the limited data the Regional Board cannot determine the reasonable potential for these constituents to cause or contribute to an exceedance of all applicable water quality standards, including California MCLs. This Order requires the Discharger to monitor for these constituents and provides a reopener to allow the Regional Board to include effluent limitations if necessary.
31. Chapter 4 of the Basin Plan contains a policy for application of water quality objectives that specifies a method for evaluating the cumulative cancer risk from multiple chemicals found together in water. As of 28 June 2002, the following constituents described by Findings No. 8 and 9 that may be present in the discharge are considered to be carcinogens as defined by The Safe Drinking Water & Toxic Enforcement Act of 1986:

1,1-DCE	TCE	Chloroform
1,2-DCA	PCE	1,1,2-TCA
Methylene Chloride		

According to the Basin Plan, for carcinogenic constituents, the additive toxicity of the sum of the constituents is determined by dividing the concentration of each carcinogen in the discharge by its toxicological limit. The Basin Plan assumes an additive toxicity problem does not exist if the

summation of the ratios is less than 1.0. If the summation of the ratios is equal to or greater than 1.0, the combination of constituents is assumed to present an unacceptable level of toxicologic risk. The Basin Plan describes additive toxicity by the following formula:

$$\sum_{i=1}^n \frac{[\text{Concentration of Toxic Substance}]_i}{[\text{Toxicological Limit for Substance in Water}]_i} < 1.0$$

32. The Implementation Policy defines Minimum Level (ML) as the concentration at which the entire analytical system must give recognizable signal and calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all method specified sample weights, volumes, and processing steps have been followed.
33. The Implementation Policy defines Method Detection Limit (MDL) as the concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR 136, Appendix B, revised as of 14 May 1999.
34. The Implementation Policy requires the Discharger to report with each sample result the corresponding applicable ML and the laboratory's current MDL.
35. According to the Implementation Policy, if no ML value is below the effluent limitation, the applicable ML value shall be the lowest ML value listed in Appendix 4 of the Implementation Policy. VOC concentrations below the MLs are generally considered unquantifiable. Therefore, application of WQBELs (daily maximum) for these constituents requires effluent to be less than the MLs for these constituents.
36. The Implementation Policy Section 1.4 states, in part, "...calculated water quality based effluent limitations shall be compared to the technology-based effluent limitations for the pollutant, and the most protective of the two types of limitations shall be included in the permit." 40 CFR 122.44 requires the same comparison and the application of the more stringent limitations.
37. Clean Water Act section 301(b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include the Basin Plan's beneficial uses and narrative and numeric water quality objectives, State Board adopted standards and federal standards including NTR and CTR. These standards include the Basin Plan's toxicity objective and Resolution 68-16. Under the Clean Water Act, the applicable technology-based standard is "best available technology economically achievable/best conventional pollutant control technology" or BAT/BCT. Because

there are no promulgated effluent limitations for VOCs in groundwater extracted for cleanup, technology-based effluent limitations are established based upon consideration of the Regional Board staff's best professional judgment (BPJ). This Regional Board has a long history of regulating cleanup of VOCs in groundwater and has consistently imposed effluent limits at less than MLs for VOCs in groundwater. With respect to the specific discharges permitted herein, and particularly the air stripper, the following have been considered:

- Appropriate technology for category or class of discharges
- Unique factors relating to the applicant
- Age of equipment
- Processes employed
- Engineering aspects of various control techniques
- Non-water quality environmental impacts, including energy requirements
- Cost of achieving proposed effluent reduction
- Influent and effluent data

Air stripping and GAC systems are appropriate technologies for complete VOC removal from extracted groundwater, and air stripping is a system currently in place. Self-monitoring data provided by the Discharger indicates that its system can consistently meet proposed effluent limits, which supports a conclusion that the proposed limits reflect BAT. Additionally, the Discharger must properly operate and maintain its treatment systems. As the Discharger is already meeting the effluent limitations with the technology the Discharger employs, continued proper operation and maintenance will achieve these effluent limits and not impose additional costs on the Discharger.

38. In addition, Clean Water Act section 301 requires implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state law. Applicable state water quality standards include Resolution 68-18.
39. Resolution No. 68-18 requires implementation of Best Practicable Treatment and Control (BPTC) to ensure that the highest water quality is maintained consistent with the maximum benefit to the people of the State. BPTC is equivalent to BAT and for VOCs subject to this Order requires meeting effluent limits set at less than MLs. BPTC for groundwater cleanup of VOCs provides that the pollutants should be discharged at concentrations less than quantifiable levels for each pollutant. Several dischargers in the Central Valley Region, including Rockwell International Company, have implemented BPTC groundwater treatment systems and have been able to treat VOCs in the wastewater to concentrations below the MLs. The MLs for VOC that are constituents of concern as they were reported by the Discharger in detectable concentrations are listed below:

Constituent

Units

ML

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1,1-DCE	µg/L	0.5
1,1-DCA	µg/L	0.5
1,2-DCA	µg/L	0.5
TCE	µg/L	0.5
PCE	µg/L	0.5
1,1,1-TCA	µg/L	0.5
1,1,2-TCA	µg/L	0.5
Methylene Chloride	µg/L	0.5
Chloroform	µg/L	0.5
Trichlorofluoromethane	µg/L	0.5

40. Previous Order No. 96-106 established technology based effluent limits for priority pollutants chloroform, methylene chloride, 1,1,1-TCA and 1,1,2-TCA and trichlorofluoromethane, which is not a priority pollutant. These constituents have been detected in groundwater and in the discharge in concentrations at or above the effluent limitations or MLs but not in concentrations that have reasonable potential to cause or contribute to an exceedance of water quality standards. Because these constituents were in detectable concentrations, effluent limitations are established in this Order.

41. The most stringent effluent limit for VOC constituents reported in detectable concentrations are:

<u>Constituent</u>	<u>Units</u>	<u>WQBEL Limit¹</u>		<u>TBEL Limit²</u>	<u>Most Stringent Effluent Limit</u>
		<u>Daily Max</u>	<u>Monthly Average</u>	<u>Maximum</u>	
1,1-DCE	µg/L	0.11	0.057	<0.5	0.057
1,1-DCA	µg/L	10.1	5	<0.5	<0.5
1,2-DCA	µg/L	0.76	0.38	<0.5	0.38
1,1,1-TCA	µg/L	402	200	<0.5	<0.5
1,1,2-TCA	µg/L	1.21	0.6	<0.5	<0.5
PCE	µg/L	1.61	0.8	<0.5	<0.5
TCE	µg/L	5.43	2.7	<0.5	<0.5
Methylene Chloride	µg/L	9.5	4.7	<0.5	<0.5
Trichlorofluoromethane	µg/L	301.5	150	<0.5	<0.5
Chloroform	µg/L	2.21	1.1	<0.5	<0.5

¹ Water Quality Based Effluent Limit.

² Technology-based Effluent Limit. These limits are applied as the daily maximum effluent limits for all of the VOC constituents.

42. Over the past several years, the air-stripper has consistently removed the pollutants to the proposed

effluent limits. The proposed effluent limitations consider the BPJ factors in Finding 37, above, historical performance of the on-site BAT/BPTC systems, receiving water conditions, USEPA method detection limits, and are less than or equal to California Primary Maximum Contaminant Levels, California Toxics Rule and National Toxics Rule criteria, and limits which implement applicable water quality objectives.

43. Application of BAT/BCT to achieve the effluent limits will also result in compliance with WQBELs and that is consistent with the requirement of Resolution 68-16 that discharges meet BPTC. A possible exception is the monthly average WQBEL limits for 1,1-DCE and 1,2-DCA. However, given that the limit for these constituents are below the applicable ML, it is appropriate to assume that a result of $<0.5 \mu\text{g/L}$ also represents compliance with the WQBEL and BPTC. The permitted discharge is consistent with the anti-degradation provisions of 40 CFR 131.12 and Resolution No. 68-16. BPTC for cleanup of groundwater polluted by volatile organic constituents is removal of VOCs to a level at or below corresponding analytical quantitation limits. Some resulting degradation of the receiving water could occur if VOCs were present at concentrations below the quantitation limit, but such degradation would not be quantifiable. The Discharger has not submitted an analysis to the Regional Board demonstrating that degradation resulting from discharges of VOCs at concentrations in excess of quantifiable levels would be consistent with the maximum benefit of the people of the state and Resolution No. 68-18. Due to the relatively low EC and TDS values of the receiving water, during periods of limited or no dilution, some degradation of the receiving water may occur from these pollutants, however, the discharge will not cause an exceedance of water quality objectives or cause a significant impact on the beneficial uses of groundwater and surface water. The continued remediation of polluted groundwater, and the use of the treated groundwater for irrigation via the Pioneer Ditch Pipeline, both benefit the people of the state.
44. Previous Order No. 96-106 established effluent limits for priority pollutants bis(2-ethylhexyl) phthalate, trans-1,2-Dichloroethylene and 1,2-Dichloropropane. These constituents have not been reported in detectable concentrations in data reported by the Discharger for groundwater and the discharge for the period May 1994 through January 2004. Since the issuance of Order No. 96-106, the CTR was implemented. The human health CTR criterion for the constituent bis(2-ethylhexyl) phthalate, trans-1,2-Dichloroethylene and 1,2-Dichloropropane are $1.8 \mu\text{g/L}$, $700 \mu\text{g/L}$ and $0.52 \mu\text{g/L}$, respectively. Monitoring between 1994 and 2004 indicate no detectable levels of any of these CTR constituents in the groundwater or discharge that exceed these criteria. The CTR provides new information on these constituents and the effects they have on human health. Based upon the CTR criteria for these constituents, there is no reasonable potential for the discharge to exceed the

limitations contained in previous Order No. 96-106, therefore effluent limitations for bis(2-ethylhexyl) phthalate, trans-1,2-Dichloroethylene and 1,2-Dichloropropane have been removed from this Order. This change is consistent with the anti-backsliding provisions of 40 CFR 122.44(l)(12) and 122.62(a)(16).

45. Previous Order No. 96-106 established effluent limits for non-priority pollutants cis-1,2-Dichloroethylene and trichlorotrifluoroethane. These constituents have not been reported in detectable concentrations in data reported by the Discharger for groundwater and the discharge for the period May 1994 through January 2004. The California primary MCL for cis-1,2-Dichloroethylene and trichlorotrifluoroethane are 6 µg/L, and 1200 µg/L, respectively. Monitoring between 1994 and 2004 indicate no detectable levels of any of these constituents in the groundwater or discharge. These values are below the primary MCL. They also are well below the effluent limitations from the previous Order. The Regional Board is not including effluent limitation for cis-1,2-Dichloroethylene and trichlorotrifluoroethane in this Order. New information regarding the nondetected concentrations of these constituents based on more than five years monitoring justify removal of these effluent limitations. This change is consistent with the anti-backsliding provisions of 40 CFR 122.44(l)(12) and 122.62(a)(16).
46. Order No. 96-106 established a TBEL for carbon tetrachloride, a priority pollutant, of 0.5 µg/L. The applicable human health CTR criterion is below this at 0.25 µg/L. Monitoring between 1994 and 2004 does not indicate carbon tetrachloride in the groundwater or effluent at detectable levels of 0.5 µg/L. Given this, there is not enough information to include a QBEL for this constituent at this time. However, as the limit in Order No. 96-106 was set above the CTR criteria, there is no data characterizing the groundwater or effluent between the criteria and detection limits employed by the Discharger, and as carbon tetrachloride is a VOC subject to removal by air-stripping, it is appropriate to include a TBEL of <0.5 µg/L for this constituent in this Order.
47. The Discharger provided influent and effluent data in the RWD for non-priority pollutants ammonia, nitrate, sulfate, barium and magnesium based on one monitoring event. Given the limited data, the Regional Board cannot determine the reasonable potential for these constituents to cause or contribute to an exceedance of applicable water quality standards. This Order requires the Discharger to monitor for these constituents and provides a reopener to allow the Regional Board to include effluent limitations later if evaluation of monitoring results proves it necessary.
48. Based on quarterly monitoring data provided by the Discharger, effluent limits were exceeded frequently during startup of the treatment system after it had been out of service for repair or other purposes. This Order establishes a more stringent monitoring program for startup of the system after shutdown. In addition this Order requires the system to be shut down if exceedances to effluent limitations occur.

49. Page IV-9, Discharges to Navigable Waters, of the Basin Plan requires at a minimum, discharges to surface waters, including streams, to comply with the following effluent limits:

- The maximum EC shall not exceed the EC of the source water plus 500 $\mu\text{mhos/cm}$ or 1,000 $\mu\text{mhos/cm}$, whichever is more stringent, and
- The chloride and boron concentrations shall not exceed 175 mg/L and 1.0 mg/L, respectively.

The Discharger under Order No. 96-106 has monitored EC. The maximum concentration reported was 985 $\mu\text{mhos/cm}$, and the average concentration was 740 $\mu\text{mhos/cm}$ for the monitoring period January 1999 through September 2003. To comply with Section IV of the Basin Plan, this Order establishes a maximum EC effluent limitation of 1,000 $\mu\text{mhos/cm}$. The limitations for EC established in this Order are maximum limitations and are intended to preclude the addition of salt. The air stripping process itself does not add salts. Therefore, the effluent EC should be the same as the influent EC. This Order assigns EC limitations and monitoring to gather information, and may be re-opened to reconsider EC limitations should future monitoring indicate the need.

This Order also establishes effluent limits for chloride and boron in accordance with the Basin Plan, Section IV. The limitations for chloride and boron established in this Order are maximum limitations. The air stripping process does not add chloride or boron. Therefore the effluent chloride and boron concentrations should be the same as the influent chloride and boron concentrations. This Order assigns chloride and boron limitations and monitoring to gather information, and may be re-opened to reconsider chloride and boron limitations should future monitoring indicate the need.

50. The RWD contains a single effluent result for nitrate-nitrogen that exceeds the State MCL of 10 mg/L for drinking water. The single result is not enough to justify an effluent limit, but it does indicate that groundwater and effluent must be monitored for nitrogen forms to determine whether the discharge threatens to cause an exceedence of the WQO for nitrate-nitrogen in the receiving waters. If nitrate or other nitrogen forms are identified as being present at concentrations that may cause an exceedence of WQOs, this Order may be reopened and appropriate effluent limits and receiving water limitations established.

51. Chapter 3, Table III-2 of the Basin Plan establishes maximum EC levels for water bodies within the Tulare Lake Basin. Table III-2 establishes a maximum EC value of 450 $\mu\text{mhos/cm}$ during the irrigation season for releases to reaches below Lake Success, one reach of which includes Pioneer Ditch Pipeline. The irrigation season is defined as late April through October of each year. This

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Order establishes a receiving water limitation for the irrigation season of 450 μ mhos/cm to ensure the protection of water quality.

52. If other constituents of concern are identified as being present or potentially being present in groundwater discharged under this Order, then this Order may be reopened and effluent limits and receiving water limitations may be established for those constituents.
53. This Regional Board action does not pre-empt or supersede the authority of local agencies to prohibit, restrict, or control the discharge of groundwater cleanup wastewater subject to their control. Discharges to local irrigation or storm water collection and conveyance facilities must obtain approval from the agency responsible for operation and maintenance of the facility.
54. Section 13267 of the California Water Code states, in part, “(a) A regional board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region” and “(b) (1) In conducting an investigation..., the regional board may require that any person who... discharges... waste...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports.” The attached Monitoring and Reporting Program is necessary to determine compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste subject to this Order.
55. CWC Section 13383 states: “ (a) The state board or a regional board may establish monitoring, inspection, entry, reporting, and recordkeeping requirements, as authorized by Section 13377 or by subdivisions (b) and (c) of this section, for any person who discharges pollutants ... any person who owns or operates a publicly owned treatment works or other treatment works treating domestic sewage, or any person who uses or disposes of sewage sludge. (b) The state board or the regional boards may require any person subject to this section to establish and maintain monitoring equipment or methods, including, where appropriate, biological monitoring methods, sample effluent as prescribed, and provide other information as may be reasonably required. (c) The state board or a regional board may inspect the facilities of any person subject to this section pursuant to the procedure set forth in subdivision (c) of Section 13267.”
56. The U.S. Environmental Protection Agency (USEPA) and this Regional Board have classified this discharge as a minor discharge.
57. Effluent limitations and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and

Guidelines, and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto that are applicable to the discharge are contained herein.

58. Review of policy relative to Effluent Dominated Water Bodies (EDWs) is underway. A Basin Plan amendment or policy issuance regarding EDWs may affect future conditions of discharge.
59. The action to adopt an NPDES permit is exempt from the provisions of California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.), in accordance with Section 13389 of the California Water Code.
60. The Discharger and interested agencies and persons were notified of intent to prescribe waste discharge requirements for this discharge and provided with an opportunity for a public hearing and an opportunity to submit written views and recommendations.
61. All the above and the supplemental data and information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing conditions of discharge.
62. In a public meeting, all comments pertaining to the discharge were heard and considered.
63. This Order shall serve as an NPDES permit pursuant to Section 402 of the Clean Water Act, and amendments thereto, and shall take effect upon the date of hearing, provided EPA has no objections.

IT IS HEREBY ORDERED that Waste Discharge Requirements Order No. 96-106 is rescinded, and that, pursuant to CWC Sections 13263, 13267, 13377, and 13383, Rockwell International Corporation and the Porterville Unified School District, their agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following when discharging from the above described groundwater cleanup system:

[Note: Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.]

A. Discharge Prohibitions

1. Discharge of material other than treated groundwater from the investigation and cleanup of VOCs as described in the Findings, or at locations or in a manner different from that described in the Findings, is prohibited.

2. By-pass or overflow of untreated or partially treated waste is prohibited, except in circumstances described in Standard Provision A.13.
3. Discharge of waste classified as 'hazardous' as defined in Section 2521(a) of Title 23, CCR, Section 2510, et seq., or 'designated', as defined in Section 13173 of the California Water Code, is prohibited.

B. Effluent Limitations

1. The maximum daily discharge to the Pioneer Ditch Pipeline (Discharge 001) shall not exceed 0.288 mgd (200 gpm).
2. The discharge from the GWCS shall not exceed the following:

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
Carbon Tetrachloride	µg/L	--	<0.5
Chloroform	µg/L	--	<0.5
Methylene Chloride	µg/L	--	<0.5
1,1-DCA	µg/L	--	<0.5
1,2-DCA	µg/L	0.38 ¹	<0.5
1,1-DCE	µg/L	0.057 ¹	<0.5
PCE	µg/L	--	<0.5
1,1,1-TCA	µg/L	--	<1.0
1,1,2-TCA	µg/L	--	<0.5
TCE	µg/L	--	<0.5
Trichlorofluoromethane	µg/L	--	<0.5
Other VOCs ²	µg/L	--	<0.5
EC ³	µmhos/cm	--	1000
Chloride	mg/L	--	175
Boron	mg/L	--	1.0

¹ If approved Minimum Level (ML) is greater than Monthly Average Limit, then compliance is met if concentration is below the ML.

² Other typical Volatile Organic Compounds listed in Appendix 4 of the Implementation Policy.

³ During the irrigation season, late April through October of each year the discharge cannot cause an exceedance of Receiving Water Limitation D.12 for EC.

3. The additive toxicity of the constituents in the discharge from the GWCS described by Finding No. 31 shall not equal or exceed 1.0. The calculation shall be based on the Monthly Average

Water Quality Based Effluent Limits listed in Finding No. 41, and the formula described in Finding No. 31.

4. All purge water shall be treated and disposed of by a method approved by the Executive Officer or shall be contained or treated until laboratory analytical results confirm that the concentration of all VOCs comply with the Effluent Limitations B.2.
5. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
 - a. Minimum for any one bioassay ----- 70%
 -
 - b. Median for any three or more consecutive ----- 90%
bioassays

C. Waste and Solids Disposal:

1. Wastes and other residual solids removed from liquid wastes or used to treat liquid wastes, except as approved by the Executive Officer, shall be recycled or disposed of in a manner that is consistent with Subdivision 1, Division 2, Title 27; Chapter 15, Division 3, Title 23; and Division 4.5, Title 22 of the CCR and approved by the Executive Officer.
2. Any proposed change in waste use or solids disposal practice from a previously approved practice shall be reported to the Executive Officer and EPA Regional Administrator at least **90 days** in advance of the change.

D. Receiving Water Limitations

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit. The discharge shall not cause the following in Pioneer Ditch Pipeline:

1. Concentrations of dissolved oxygen to fall below 5.0 mg/L. The monthly median dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent of saturation.
2. Un-ionized ammonia to be present in amounts that adversely affect beneficial uses or that exceed 0.025 mg/L (as N).

3. Biostimulatory substances to be present in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.
4. The fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100 ml or cause more than 10 percent of total samples to exceed 400 MPN/100 ml.
5. Oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
6. Aesthetically undesirable discoloration.
7. The turbidity to increase as follows:
 - a. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs.
 - b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
 - c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
 - d. More than 10 percent where natural turbidity is greater than 100 NTUs.
8. The normal ambient pH to fall below 6.5, exceed 8.3, or change by more than 0.3 standard units.
9. Floating material, including but not limited to solids, liquids, foams, and scum, in concentrations that create a nuisance or adversely affect beneficial uses.
10. The natural ambient temperature to increase more than 5°F, or to be altered to a degree that adversely affects beneficial uses.
11. Deposition of material that causes nuisance or adversely affects beneficial uses.
12. The EC during the irrigation season (late April through October) to exceed 450 µmhos/cm.
13. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal, or

aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

14. Toxic substances to be present in the water that produce detrimental physiologic responses in human, plant, animal, or aquatic life.
15. Pesticides to be present in concentrations that adversely affect beneficial uses or that cause increases in pesticide concentrations in bottom sediments or organic life that adversely affect beneficial uses.
16. Taste- or odor-producing substances in concentrations that cause nuisance, adversely affect beneficial uses, or impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to domestic or municipal water supplies.
17. Violation of any applicable water quality objective or promulgated water quality criterion for receiving waters adopted by the Regional Board or the State Water Resources Control Board or the USEPA pursuant to the CWA and regulations adopted thereunder.

E. Groundwater Limitations

The discharge shall not cause the underlying groundwater to be degraded.

F. Provisions

1. This Order sets conditions for discharge to the Pioneer Ditch Pipeline. This Order does not grant privilege to use the subject canal.
2. The Discharger shall comply with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)*, dated March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as *Standard Provisions(s)*.
3. The Discharger shall comply with Monitoring and Reporting Program (MRP) No. R5-2005-0092, which is a part of this Order, and any revisions thereto as ordered by the Executive Officer.

When requested by U.S. EPA, the Discharger shall complete and submit Discharge Monitoring Reports to the U.S. EPA. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger Self Monitoring Reports.

4. By **24 August 2005**, the Discharger shall submit a technical report in a form of a work plan for the treatment of contaminated purge water prior to discharge for review and approval by the Executive Officer. The technical workplan shall conform to Provision F.12.
5. By **26 September 2005**, the Discharger shall submit an operation and maintenance plan (O&M Plan) for review and approval by the Executive Officer. The O&M Plan shall:
 - a. Instruct operating personnel on how to manage the day-to-day discharge operation to comply with the terms and conditions of this order.
 - b. Detail how frequently the air-stripper unit is serviced and also describe how valves and plumbing are clearly labeled to ensure proper operation of the GWCS by operating personnel.
 - c. Detail procedures to be followed before, during, and after system start-up and shutdown to prevent the discharge of untreated or partially treated groundwater.

The O&M Plan shall also include details for the following aspects of the proposed sampling and analyses processes for monitoring influent, effluent, and groundwater:

- d. A proposed list of analytes;
- e. An analytical method summary (must be USEPA approved methods capable of quantifying analytes to levels at or below those specified in Effluent Limitations and Receiving Water Limitations, above);
- f. Sample preparation, collection, preservation, handling, and storage procedures;
- g. Discussions of possible interferences and potential problems;
- h. Descriptions of sampling and analysis equipment/apparatus;
- i. Quality assurance and quality control measures;
- j. Well purging methods;
- k. Health and safety issues and precautions.

A copy of the O&M Plan shall be kept at the GWCS office for reference by operating personnel. Key operating personnel shall be familiar with its contents. The O&M Plan shall conform to Provision F.12.

6. If the system has a shutdown that may result in discharge of untreated or partially treated wastewater, the Discharger shall increase effluent sampling frequency as described in the attached MRP No. R5-2005-0092. Samples shall be analyzed immediately upon startup and daily thereafter until continuous steady-state operation is achieved. The Discharger shall ensure that there is sufficient time between sample collections to avoid sample clustering.

Untreated or partially treated wastewater shall be handled as described in the approved O&M Plan (Provision F.5).

7. If single sample results appear to indicate violations of monthly average or daily maximum effluent limits and the Discharger does not collect additional samples for confirmation or calculation purposes, the single sample results will be considered violations of the requirements of this Order. The Discharger may sample more frequently than required by the attached MRP No. R5-2005-0092 to provide a more representative data base and possibly lower reported average constituent values to demonstrate compliance with effluent limitations.
8. The Discharger shall conduct the chronic toxicity testing specified in MRP No. R5-2005-0092. If the testing indicates that the discharge causes, contributes to, or has the reasonable potential to cause or contribute to an in-stream excursion above the water quality objective for toxicity, the Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon implementation of the TIE, the Discharger shall submit a workplan to conduct a Toxicity Reduction Evaluation (TRE) and upon Executive Officer approval conduct the TRE. If necessary, this Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. The results shall conform to Provision F.12. Additionally, if the State Water Resources Control Board adopts a chronic toxicity water quality objective, this Order may be reopened to include an effluent limitation based on that objective.
9. This Board may modify or reopen this Order prior to its expiration date in any of the following circumstances:
 - a. If present or future investigations demonstrate that the discharge governed by this Order has a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters;
 - b. New or revised water quality objectives (WQOs) come into effect for the receiving water. In such cases, effluent limitations in this permit will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs or as otherwise permitted under federal regulations governing NPDES permit modifications;
 - c. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified. The Discharger may request permit modification on this basis. The Discharger shall include in any such request an antidegradation and antibacksliding analysis.

10. Prior to making significant change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of or clearance from the State Water Resources Control Board (Division of Water Rights).
11. The Discharger shall employ best practicable treatment and control (BPTC) of the discharge, including proper operation and maintenance, to comply with this Order.
12. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with sections 415 and 3065 of Title 16, CCR, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
13. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded immediately to this office.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with the Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.
14. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
15. Personnel operating the GWCS shall keep a copy of this Order at the site for reference. Key operating personnel shall be familiar with its contents.

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16. This Order expires on **24 June 2010**, and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such date to apply for renewal of waste discharge requirements if it wishes to continue the discharge to Pioneer Ditch Pipeline.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 24 June 2004.

THOMAS R. PINKOS, Executive Office

GEA: 6/24/05

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2005-0092

NPDES NO. CA0082708
FOR
ROCKWELL INTERNATIONAL CORPORATION
AND
PORTERVILLE UNIFIED SCHOOL DISTRICT
GROUNDWATER CLEANUP SYSTEM
TULARE COUNTY

Specific sample station locations shall be established with concurrence of the Regional Board's staff, and the Discharger shall attach a copy of Regional Board staff's written concurrence and a description of the stations to its copy of this Monitoring and Reporting Program. All analyses shall be performed using methods approved by USEPA and the Regional Board. In reporting data, the Discharger shall indicate whether any analysis was performed using a method not in conformance with USEPA's Guidelines.

INFLUENT MONITORING

Samples shall be collected for each extraction well (currently REX-1 and REX-2) prior to entering the GWCS for Discharge No. 001 at approximately the same time as effluent samples. Influent samples shall be representative of the volume and quality of extracted groundwater. The time of collection of samples shall be recorded. Influent monitoring points shall be defined as:

- I-001 for samples collected for extraction well REX-1
- I-002 for samples collected for extraction well REX-2

Influent monitoring shall include at least the following:

<u>Constituents</u>	<u>Units</u>	<u>Sample Type</u>	<u>Sampling Frequency</u>
Carbon Tetrachloride ¹	µg/L	Grab	Bi-Monthly
Chloroform ¹	µg/L	Grab	Bi-Monthly
Methylene Chloride ¹	µg/L	Grab	Bi-Monthly
1,1-DCA ¹	µg/L	Grab	Bi-Monthly
1,2-DCA ¹	µg/L	Grab	Bi-Monthly
1,1-DCE ¹	µg/L	Grab	Bi-Monthly
PCE ¹	µg/L	Grab	Bi-Monthly
1,1,1 TCA ¹	µg/L	Grab	Bi-Monthly
1,1,2 TCA ¹	µg/L	Grab	Bi-Monthly
TCE ¹	µg/L	Grab	Bi-Monthly
Trichlorofluoromethane ¹	µg/L	Grab	Bi-Monthly
Other VOCs ^{2,3}	µg/L	Grab	Bi-Monthly

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<u>Constituents</u>	<u>Units</u>	<u>Sample Type</u>	<u>Sampling Frequency</u>
Conductivity ⁴	µmhos/cm	Grab	Bi-Monthly
Boron ⁴	mg/L	Grab	Bi-Monthly
Chloride ⁴	mg/L	Grab	Bi-Monthly
Hardness as CaCO ₃ ⁴	mg/L	Grab	Bi-Monthly

¹. Test Method used shall be EPA Method 601, Standard Method (20th edition) 6200C, EPA Method 8260, or an equivalent method with a PQL no greater than 0.5 µg/L.

². All typical volatile organic constituents listed in Appendix 4 of the Implementation Policy.

³. VOCs = Volatile Organic Compounds

⁴. If the results of one year of monitoring indicate a baseline trend for the concentration of this constituent in the effluent, the Discharger may submit a written request to the Executive Officer to reduce or eliminate this requirement.

EFFLUENT MONITORING

Effluent samples shall be collected at discharge point D-001 from the last connection through which wastes can be admitted into the outfall. Effluent samples should be representative of the volume and nature of the discharge. Time and specific location of collection of the grab sample shall be recorded. The following shall constitute the effluent monitoring program:

<u>Constituents</u>	<u>Units</u>	<u>Sample Type</u>	<u>Sampling Frequency</u>
Total Flow ¹	mgd	Metered	Bi-Monthly ^{8,9}
Temperature	°C	Grab	Bi-Monthly
Ammonia	mg/L	Grab	Bi-Monthly ⁷
Barium	mg/L	Grab	Bi-Monthly ⁷
Arsenic	µg/L	Grab	Bi-Monthly ⁷
Chromium III	µg/L	Grab	Bi-Monthly ⁷
Chromium VI	µg/L	Grab	Bi-Monthly ⁷
Mercury	µg/L	Grab	Bi-Monthly ⁷
Selenium	µg/L	Grab	Bi-Monthly ⁷
Zinc	µg/L	Grab	Bi-Monthly ⁷
General Minerals ²	mg/L	Grab	Bi-Monthly ⁷
Boron	mg/L	Grab	Bi-Monthly ⁷
Carbon Tetrachloride ³	µg/L	Grab	Bi-Monthly ⁹
Chloroform ³	µg/L	Grab	Bi-Monthly ⁹
Methylene Chloride ³	µg/L	Grab	Bi-Monthly ⁹
1,1-DCA ³	µg/L	Grab	Bi-Monthly ⁹
1,2-DCA ³	µg/L	Grab	Bi-Monthly ⁹

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<u>Constituents</u>	<u>Units</u>	<u>Sample Type</u>	<u>Sampling Frequency</u>
1,1-DCE ³	µg/L	Grab	Bi-Monthly ⁹
PCE ³	µg/L	Grab	Bi-Monthly ⁹
1,1,1 TCA ³	µg/L	Grab	Bi-Monthly ⁹
1,1,2 TCA ³	µg/L	Grab	Bi-Monthly ⁹
TCE ³	µg/L	Grab	Bi-Monthly ⁹
Trichlorofluoromethane ¹⁰	µg/L	Grab	Bi-Monthly ⁹
Other VOCs ^{3,4,5}	µg/L	Grab	Bi-Monthly ⁹
Acute Toxicity ⁶	% Survival	Grab	Annually

- The frequency shall be increased to "Daily" if the flow capacity of the GWCS increases.
- General Minerals as referred to in this program shall include alkalinity, bicarbonate, calcium, carbonate, chloride, conductivity, hardness, hydroxide, iron, magnesium, manganese, pH, potassium, sodium, sulfate, total dissolved solids, and all major anions and cations. Analyses should be accompanied by an anion cation balance demonstrating that analyses are complete.
- Test Method used shall be EPA Method 601, Standard Method (20th edition) 6200C, EPA Method 8260, or an equivalent method with a PQL no greater than 0.5 µg/L, or an equivalent method to achieve minimum MLs specified in Appendix 4 of the most current Implementation Plan.
- All typical volatile organic constituents listed in Appendix 4 of the Implementation Policy.
- VOCs = Volatile Organic Compounds.
- All acute toxicity bioassays shall be performed according to EPA-821-R-02-012 *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition*, October 2002 (or latest edition) using *Pimephales promelas* with no pH adjustment. Temperature and pH shall be recorded at the time of bioassay sample collection.
- After one year of monitoring and reporting, the Discharger may request the Executive Officer reduce or eliminate the monitoring frequency.
- Reported as maximum daily flow (see Standard Provision E.2).
- If the system has a shutdown that may result in discharge of untreated or partially treated wastewater, the Discharger shall increase effluent sampling frequency to daily. Samples shall be analyzed immediately upon startup and daily thereafter until continuous steady-state operation is achieved, in accordance with Provision F.6.
- Test Method used shall be EPA Method 601, Standard Method (20th edition) 6200C, EPA Method 8260, or an equivalent method with a PQL no greater than 1.0 µg/L.

If other constituents of concern are identified as being present or potentially being present in groundwater discharged under this Order, then this Order may be revised or a new monitoring and reporting program issued to include monitoring requirements for those constituents.

If results of monitoring a pollutant appear to violate instantaneous maximum limitations, the frequency of sampling shall be increased to daily until compliance is verified. If effluent monitoring detects a pollutant at concentrations greater than a daily maximum limitation, the Discharger shall resample and reanalyze the discharge immediately after receiving knowledge of the exceedance. If the Discharger

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does not increase monitoring frequency for instances of apparent violation, compliance with Daily Maximum and Monthly Average limitations will be determined with available monitoring data in accordance with Provision F.7.

The Discharger shall report the Minimum Level (ML) and the laboratory's Method Detection Limit (MDL) for each sample result. Results greater than or equal to the ML shall be reported as measured. Sample results less than the ML but greater than or equal to the laboratory's MDL, shall be reported as "Detected but Not Quantified" (DNQ). The estimated chemical concentration of the sample shall also be reported. The laboratory may include numerical estimates of the data quality. Results less than the laboratory's MDL shall be reported as "Not Detected" (ND).

THREE SPECIES CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to the receiving water. The testing shall be conducted as specified in EPA-821-R-02-013, *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, October 2002. Chronic toxicity samples shall be collected at discharge point D-001 prior to discharge to Pioneer Ditch Pipeline. Samples shall be representative of the volume and quality of the discharge. Time of collection samples shall be recorded. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay and reported with the test results. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic manual. If the test acceptability criteria are not achieved, then the Discharger must re-sample and re-test within 14 days. Chronic toxicity monitoring shall include the following:

Species: *Pimephales promelas*, *Ceriodaphnia dubia* and *Selenastrum capricornutum*
 Frequency: Quarterly.
 Dilution Series: See Table below

	<u>Dilutions (%)</u>					<u>Controls</u>	
	<u>100</u>	<u>50</u>	<u>25</u>	<u>12.5</u>	<u>6.25</u>	<u>Receiving Water¹</u>	<u>Lab Water</u>
% Effluent	100	50	25	12.5	6.25	0	0
% Dilution Water ¹	0	50	75	87.5	93.75	100	0
% Lab Water ²	0	0	0	0	0	0	100

¹ Dilution water may be uncontaminated receiving water, a standard synthetic (reconstituted) water, or another acceptable dilution water as defined in Section 7 of EPA/821/R-02/013. The dilution series may be altered upon written approval of Regional Board staff.

² Lab water shall meet EPA protocol requirements

If chronic toxicity analyses conducted for four consecutive quarters demonstrate that the effluent does

not exhibit toxicity, chronic toxicity monitoring may be discontinued, subject to the approval of the Executive Officer.

PRIORITY POLLUTANT MONITORING

The Discharger shall conduct effluent monitoring of priority pollutants **one time no more than 365 days and no less than 180 days prior to expiration of this Order**. The list of priority pollutants and required minimum levels (MLs) (or criterion quantitation limitations) is included as **Attachment B**. The Discharger must analyze pH and hardness at the same time as priority pollutants.

All analyses shall be performed at a laboratory certified by the California Department of Health Services. The laboratory is required to submit the Minimum Level (ML) and the Method Detection Limit (MDL) with the reported results for each constituent. The MDL should be as close as practicable to the USEPA MDL determined by the procedure found in 40 CFR Part 136. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

- a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory.
- b. Sample results less than the reported ML, but greater than or equal to the laboratory's MDL, shall be reported as "Detected but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.
- c. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration." Numerical estimates of data quality may be by percent accuracy (+ or – a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
- d. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

REPORTING

Bi-monthly monitoring results may be submitted with semi-annual monitoring results unless the results show an apparent violation. If results show an apparent violation, results must be submitted monthly to the Regional Board by the **1st day of the second month** following sample collection until the apparent violation is resolved. Bi-monthly monitoring results shall be available on the **1st day of the second month** following every two months (i.e., 1 February, 1 April, 1 June, 1 August, 1 October, and 1 December), but may be submitted with semi-annual monitoring results instead of every two months, as described above. Quarterly monitoring results shall be submitted by the **1st day of the second month** following the end of each calendar quarter (i.e., by 1 February, 1 May, 1 August, and 1 November). Semi-annual monitoring results shall be submitted by the **1st day of the second month** following the end of each half-year (i.e., by 1 February, and 1 August). Annual monitoring results shall be submitted

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1 February of each year. Reports shall be submitted whether or not there was a discharge during the reporting period. Failure to submit a report will result in an assessment of a Minimum Mandatory Penalty pursuant to CWC Section 13385.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly the compliance with waste discharge requirements. The highest daily maximum for the month and monthly averages shall be determined and recorded. The report shall also include an evaluation of the groundwater cleanup progress, trends, monitoring well analyses and plume containment. If this evaluation is already submitted to the Regional Board in a separate report, then the Discharger may reference the date and title of the most recent report in lieu of including it with the NPDES monitoring report.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring form.

By **1 February** of each year, the Discharger shall submit an annual written report to the Executive Officer containing the following:

- a. The names and telephone numbers of persons to contact regarding the Facility for emergency and routine situations.
- b. A statement certifying when monitoring instruments and devices were last calibrated (for purposes of assuring compliance with this Order), including identification of who performed the calibration (Standard Provision C.6).
- c. A statement certifying whether the current operation and maintenance manual and contingency plan reflect the Facility as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.
- d. Tabular and graphical summaries of the monitoring data obtained during the previous year. Monitoring data shall also be submitted in electronic format acceptable to the Executive Officer (e.g. Microsoft Excel).
- e. A discussion of the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

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All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision D.6.

The Discharger shall implement the above monitoring program on the first day of the month following adoption of this Order.

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

24 June 2004

(Date)

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Rockwell International Corporation and the Porterville Unified School District (hereafter jointly referred to as Discharger) applied for permit renewal to discharge wastewater under the National Pollutant Discharge Elimination System (NPDES).

Rockwell International Corporation has the responsibility to cleanup groundwater contaminated with volatile organic compounds (VOCs) in the vicinity of the School District's property, about two miles northeast of Porterville.

The School District's property consists of approximately 35 acres of land adjacent to and east of State Highway 65. Water and gas meter manufacturing facilities were originally constructed on the property in 1956 by the Porterville Development Board per specifications developed by Rockwell Manufacturing Company who leased the property until 1971 when Rockwell International Corporation purchased the property. In 1975, the property was purchased by INCOM and used for manufacturing marine cable until August 1982. Mr. Albert Levinson, defined by Waste Discharge Requirements (WDRs) Order No. 96-106 as a Discharger, purchased the site in 1983. In 2000, the Porterville Unified School District (School District) purchased the property from the Levinson Estate. The Porterville Unified School District is currently converting the property to an adult education facility. Rockwell Manufacturing Company and Rockwell International Corporation both contributed to the groundwater pollution.

Two distinct aquifer zones have been delineated in the upper 160 feet of alluvial sediments. The upper aquifer originates about 50 feet below ground surface (bgs) and extends to about 100 feet bgs. The lower aquifer occurs below a depth of about 130 feet and ranges in thickness from about five to thirty feet.

Investigation of the upper aquifer in the vicinity and downgradient of the property identified the lateral extent of the pollution. In 1991, two private wells outside of the property boundaries were identified as potential conduits to the lower aquifer and were properly abandoned. The VOC plume is within the upper aquifer and roughly 30 feet thick, 550 feet wide, and 900 feet long.

In May 1991, the Discharger installed a groundwater cleanup system (GWCS) consisting of an extraction well (REX-1), a scale inhibitor system, an air-blower and packed tower aeration air-stripping tower (PTA), and dual-vessel vapor phase granular activated carbon (GAC) adsorbers. In June 1998, the Discharger removed the GAC adsorbers because the San Joaquin Valley Air Pollution Control District allowed for the direct discharge of the air-stripper vapor without GAC polish. In 2001, the Discharger added an additional extraction well (REX-2). In 2002, the Discharger replaced the PTA with a low profile tray design air-stripper (model No. STAT 180). The low-profile tray air stripper uses counter-current flow to remove dissolved volatile organic compounds (VOCs) from groundwater as it is sprayed over and trickles through a five-tray system. A scale inhibitor prevents formation of inorganic deposits in the air-stripper. The GWCS is designed to hydraulically contain the plume and control

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migration of the pollutants. The treated groundwater is discharged to Pioneer Ditch Pipeline about 220 feet east of the northeastern corner of the property.

Pioneer Ditch Pipeline is a pressurized subterranean pipeline used to convey irrigation and recharge waters from Success Dam, east of Porterville, to agricultural lands along its eleven-mile length. The pipeline terminates about two miles north of the School District's property. Roughly one-third of a mile from its terminus, surplus water flows from Pioneer Ditch Pipeline into an unlined cross connection, approximately one mile long, which connects with Canal No. 4, operated by the Lower Tule River Irrigation District. The discharge to Pioneer Ditch Pipeline is currently distributed by the Lower Tule River Irrigation District for irrigation.

Canal No. 4 conveys irrigation waters between Porterville and Corcoran. As part of this conveyance, the water flows through a segment of the North Fork of the Tule River, which is approximately eight miles in length. It is likely that the treated groundwater may at times be discharged into the North Fork of the Tule River, a water of the United States and a tributary to the Tule River.

During normal conditions, flow in the Pioneer Ditch Pipeline is from Success Dam "downstream" towards the Levinson Property. However, in order to supply agricultural water to farms "upstream," occasionally the Lower Tule River Irrigation District may adjust the pressure of the Pioneer Ditch Pipeline, which reverses the direction flow in the Pioneer Ditch Pipeline.

History of Compliance with Effluent Limitations

Effluent monitoring data submitted by the Discharger for the period June 1996 through January 2004 was evaluated for compliance with effluent limitations of WDRs Order No. 96-106. The discharge exceeded the effluent limitations on the following occasions:

	Units	1,1-DCE	1,1-DCA	1,2-DCA	Methylene Chloride	1,1,1-TCA	TC E	PCE
Order No. 96-106 Effluent Limitation		3.0	0.5	0.5	1.0	1.0	0.5	0.5
No. of Exceedances		4	4	0	0	0	3	2
Date Exceeded/Concentration								
8/3/1997	µg/L	37	1.5	--	--	--	--	--
10/20/1999	µg/L	42	2	--	--	--	1.1	2.1
11/7/2002	µg/L	36	5.1	--	--	--	2.1	2.6
11/7/2002	µg/L	7.2	2.3	--	--	--	--	--
12/10/2002	µg/L	--	--	--	--	--	0.7	--

Effluent Limitations and Monitoring

Federal regulations, 40 CFR Part 122.44 (d)(1)(i), require that NPDES permit effluent limitations must control all pollutants which are or may be discharged at a level which will cause or have the reasonable potential to cause or contribute to an in-stream excursion above any State water quality standard, including any narrative criteria for water quality. Beneficial uses, together with their corresponding water quality objectives or federally promulgated water quality criteria, are defined per federal regulations as water quality standards.

State Water Resources Control Board Resolution No. 68-18 requires implementation of Best Practicable Treatment and Control (BPTC) to ensure that the highest water quality is maintained consistent with the maximum benefit to the people of the State. Federal Regulations require effluent limits representing best available technology economically feasible (BAT) for all toxic pollutants. For treatment of VOCs associated with groundwater cleanups, BAT is consistent with BPTC. BAT based on Regional Board staff's best professional judgment, and BPTC for groundwater cleanup of VOCs provides that the pollutants should be discharged at concentrations less than quantifiable levels for each pollutant.

The effluent limitations consider BPTC for VOC removal, the historical performance of the on-site treatment system, receiving water conditions, and USEPA Method quantitation limits and are less than California Primary Maximum Contaminant Levels.

The following major revisions to previous Order No. 96-106 have been made to this Order:

- Technology-based effluent limitations for 1,1-DCE, PCE, methylene chloride and 1,1,1-TCA were made more stringent based on Best Practicable Treatment and Control. Effluent limits of <0.5 µg/L are included as opposed to 3 µg/L for 1,1-DCE, 2 µg/L for PCE, 1.0 µg/L for methylene chloride and 1.0 µg/L for 1,1,1-TCA.
- Technology-based effluent limitations of <0.5 µg/L were established for "Other Volatile Organic Compounds" listed in Appendix 4 of the Implementation Policy.
- Water quality-based monthly average effluent limits were established for 1,2-DCA and 1,1-DCE of 0.38 µg/L and 0.057 µg/L, respectively, based on criteria for human health protection promulgated by the U.S. Environmental Protection Agency in the National Toxics Rule that are lower than technology-based effluent limitations.
- Acute toxicity effluent limitations were added to the proposed Order in accordance with Basin Plan requirements.

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- Receiving water limitation for EC not to exceed 450 $\mu\text{mhos/cm}$ during the irrigation season was added to the proposed Order in accordance with Table III-2 of the Basin Plan.
- Daily maximum effluent limitations for EC, boron, and chloride of 1000 $\mu\text{mhos/cm}$, 1.0 mg/L and 175 mg/L, respectively, were added in accordance with the Implementation Requirements for Discharges to Navigable Waters contained in the Basin Plan.
- Effluent limitations for bis(2-ethylhexyl) phthalate, 1,2-Dichloropropane, trans-1,2-Dichloroethylene, cis-1,2-Dichloroethylene and Freon 113 (Trichlorotrifluoroethane) were removed from this Order.
- Monitoring and Reporting Program (MRP) No. R5-2005-0092 requires the Discharger to monitor the flow bi-monthly. The previous Order required daily reporting of flow. The Discharger has stated that since there is not a recording flow meter at the site, reporting daily flow rates would entail daily visits to the facility that would be impractical. Currently, the combined flow capacity of the extraction wells cannot physically exceed the flow limitation of 0.288 mgd (200 gpm) prescribed by this Order. However, if the Discharger expands the flow capacity of the GWCS, MRP No. R5-2005-0092 requires the Discharger to monitor the flow continuously.
- Monitoring requirements were established for “Other Volatile Organic Compounds” listed in Appendix 4 of the Implementation Policy.
- Monitoring and requirements for all priority pollutants at least once during the term of this Order and at least 180 days prior to the expiration of this Order, as set forth in the Implementation Policy.
- Quarterly monitoring requirements were established for chronic toxicity testing. The Order allows the Discharger to request to cease conducting chronic toxicity testing provided the test results indicates the discharge does not cause toxicity.
- Influent monitoring requirements have been established under this Order.

Reasonable Potential Analysis

In accordance with the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (hereafter referred to as the Implementation Policy), on 8 May 2001 and 23 October 2001 the Discharger reported the analytical results of the discharge for 126 priority pollutants, pH, hardness, and flow, respectively. The Discharger also submitted analytical results of the discharge for each of the 17 TCDD congeners listed in Table 4 of the Implementation Policy.

A Reasonable Potential Analysis (RPA) in accordance with the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the SIP) for CTR constituents, and the *Technical Support Document for Water Quality Based Toxics Control* (EPA/505/2-90-001) (TSD) for non-CTR constituents was conducted on the data to determine whether the discharge will cause, have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the discharge does have a reasonable potential to cause or contribute to an in-stream excursion above a water quality standards for the following CTR constituents: 1,1-DCA, 1,2-DCA, 1,1-DCE, PCE and TCE.

The Discharger submitted limited data for non-volatile CTR and non-CTR constituents that does not provide sufficient information for the Regional Board to determine reasonable potential for arsenic, chromium III, chromium VI, mercury, selenium, zinc, ammonia, nitrate, sulfate, barium and magnesium. This Order establishes monitoring requirements for these constituents and includes a re-opener to allow the Board to establish effluent limitations if necessary based on the monitoring results.

Monitoring data used to conduct the reasonable potential analysis consisted of influent and effluent data (including data provided in the special monitoring study required by the Implementation Policy), and influent and effluent data provided in the RWD. The maximum detectable concentrations reported by these data sets are summarized as follows:

Sampling Type	Units	1,1-DCE	1,1-DCA	1,2-DCA	Methylene Chloride	1,1,1-TCA	TCE	PCE	Trichloro-fluoromethane
M&RP Influent Monitoring Data	µg/L	140	6.1	27	1.8	2.4	3.1	4.6	1.2
M&RP Effluent Monitoring Data	µg/L	42	5.1	ND	1	ND	2.1	2.6	ND
RWD Data	µg/L	127.3	15.8	4.3	ND	4.4	8.3	10.1	ND

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Sampling Type	Units	1,1-DCE	1,1-DCA	1,2-DCA	Methylene Chloride	1,1,1-TCA	TCE	PCE	Trichloro-fluoromethane
Maximum Concentration used in RPA	µg/L	140	15.8	27	1.8	4.4	8.3	10.1	1.2

A summary of all the monitoring data used to conduct the RPA is provided in Tables 1 and 2 attached to this Information Sheet. A summary of the RPA analysis for all constituents reported in detectable concentrations is in Table 3 (attached).

Water quality based effluent limitations (WQBELs) calculated for these constituents, based on the most restrictive water quality objectives and the methodology presented in the Implementation Policy, are summarized below:

<u>Constituent</u>	<u>Units</u>	<u>Most Stringent WQBEL</u>	
		<u>Daily Max</u>	<u>Monthly Average</u>
1,1-DCE	µg/L	0.11	0.057
1,1-DCA	µg/L	10.5	5
1,2-DCA	µg/L	0.76	0.38
1,1,1-TCA	µg/L	402	200
1,1,2-TCA	µg/L	1.21	0.6
PCE	µg/L	1.61	0.8
TCE	µg/L	5.43	2.7
Methylene Chloride	µg/L	9.5	4.7
Trichlorofluoromethane	µg/L	301.5	150
Chloroform	µg/L	2.21	1.1

Table 4 (attached) provides a summary of the final effluent limitations for each constituent and provides a summary of how each limit was calculated.

Technology-based Effluent Limits

Section 1.4 of the Implementation Policy requires that water quality based effluent limits be compared to technology-based effluent limits and that the more protective limit be applied in the permit.

Therefore, technology-based effluent limits must be developed for each constituent. For establishing BAT based upon BPJ, 40 CFR 125 requires consideration of several specific factors. The following factors were considered:

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Appropriate Technology for Category or Class of Discharges, Processes Employed, Engineering Aspects of Various Control Techniques. Air Stripping treatment systems are commonly used to remove VOCs from extracted groundwater at cleanup sites. Systems are designed to remove VOCs to nondetectable concentrations. Properly operated and maintained systems perform reliably and ensure essentially complete removal of VOCs. Rockwell International Corporation employs an air stripper system. The scale inhibitor prevents formation of inorganic deposits in the low profile tray design air-stripper. The permitted flow is 200 gpm (0.288 mgd). Information provided in the RWD indicated the maximum discharge for the facility has been 100 gpm (0.144 mgd) and the average flow has been 56 gpm (0.08 mgd).

Age of Equipment. In May 1991, the Discharger installed a scale inhibitor system, an air-blower and packed tower aeration air-stripping tower (PTA), and dual-vessel vapor phase granular activated carbon (GAC) adsorbers. In June 1998, the GAC adsorbers were removed because the San Joaquin Valley Air Pollution Control District allowed for the direct discharge of the air-stripper vapor without GAC polish. In 2002, the Discharger replaced the PTA with a low profile tray design air-stripper (model No. STAT 180).

Influent and Effluent Data. The SMR data provided by the Discharger indicates that its air stripper effluent VOC concentrations are generally below detection limits of 0.5 µg/L, and thus will meet the proposed effluent limits. The Regional Board assumes that the exceedances of the detection limits are likely attributable to lack of timely maintenance.

Unique Factors Relating To The Applicant. Rockwell International Corporation has not identified any unique factors that would justify discharges having quantifiable concentrations of VOCs.

Non-Water Quality Environmental Impacts, Including Energy Requirements; Cost Of Achieving Proposed Effluent Reduction. The system currently in place reliably removes VOCs to nondetectable concentrations of <0.5 µg/L, therefore, implementation of the proposed limits would not create additional non-water quality impacts, or financial costs for Rockwell International Company.

The above supports a conclusion that the limits of <0.5 µg/L as a daily maximum reflects BPTC/BAT.

The technology-based standard for cleanup of VOCs in groundwater with an airstripper, GAC, or combination treatment system is that all effluent should be discharged with unquantifiable levels of VOCs in the effluent. For VOCs of concern, the MLs listed in Appendix 4 of the Implementation Policy represent the minimum quantifiable levels of these constituents and serve as the technology-based effluent limits. A summary of the TBELs is listed below:

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<u>Constituent</u>	<u>Units</u>	<u>TBEL</u>
1,1-DCE	µg/L	<0.5
1,1-DCA	µg/L	<0.5
1,2-DCA	µg/L	<0.5
1,1,1-TCA	µg/L	<0.5
1,1,2-TCA	µg/L	<0.5
PCE	µg/L	<0.5
TCE	µg/L	<0.5
Methylene Chloride	µg/L	<0.5
Trichlorofluoromethane	µg/L	<0.5
Chloroform	µg/L	<0.5

Final Effluent Limits

The more stringent of the technology-based or water quality based effluent limits has been implemented as the effluent limit in this Order for each constituent. A comparison of the TBEL and WQBEL for each constituent is provided below:

<u>Constituent</u>	<u>Units</u>	<u>WQBEL Limit</u>		<u>TBEL</u>	<u>Most Stringent</u> <u>Effluent Limit</u>
		<u>Daily Max</u>	<u>Monthly</u> <u>Average</u>	<u>Limit</u> <u>Maximum</u>	
1,1-DCE	µg/L	0.11	0.057	<0.5	0.057
1,1-DCA	µg/L	10.5	5	<0.5	<0.5
1,2-DCA	µg/L	0.76	0.38	<0.5	0.38
1,1,1-TCA	µg/L	402	200	<0.5	<0.5
1,1,2-TCA	µg/L	1.21	0.6	<0.5	<0.5
PCE	µg/L	1.61	0.8	<0.5	<0.5
TCE	µg/L	5.43	2.7	<0.5	<0.5
Methylene Chloride	µg/L	9.5	4.7	<0.5	<0.5
Trichlorofluoromethane	µg/L	301.5	150	<0.5	<0.5
Chloroform	µg/L	2.21	1.1	<0.5	<0.5

TDS, Conductivity, Boron and Chloride

Salinity, total dissolved solids (TDS), and EC are measures of dissolved salts in water. Salinity is a measure of the mass fraction of salts (measured in parts per thousand), whereas TDS is a measure of the concentration of salts (measured in mg/L). Since the EC of water generally changes proportionate to changes in dissolved salt concentrations, EC is a convenient surrogate measure for TDS.

Page IV-9, Discharges to Navigable Waters, of the Basin Plan requires at a minimum, dischargers to surface waters, including streams, to comply with the following effluent limits:

- Maximum EC not to exceed the quality of the source water plus 500 $\mu\text{mhos/cm}$ or 1,000 $\mu\text{mhos/cm}$, whichever is more stringent, and
- Discharges shall not exceed an EC of 1,000 $\mu\text{mhos/cm}$, a chloride content of 175 mg/L or a boron content of 1.0 mg/L.

The Discharger under the previous Order No. 96-106 has monitored EC. The maximum value reported was 985 $\mu\text{mhos/cm}$, and the average concentration was 740 $\mu\text{mhos/cm}$ for the monitoring period January 1999 through September 2003. To comply with Section IV of the Basin Plan, this Order establishes a maximum EC effluent limitation of 1,000 $\mu\text{mhos/cm}$. As this Order establishes a limit for EC, and EC is a surrogate for TDS, an effluent limitation for TDS has not been included in this Order.

This Order also establishes effluent limits for chloride and boron in accordance with the Basin Plan, Section IV. These limitations are established in this Order as maximum limitations. The air stripping process does not add EC, chloride or boron. Therefore the effluent concentrations for these constituents should be the same as the influent concentrations. This Order assigns EC, chloride and boron limitations and monitoring to gather information, and may be re-opened to include more stringent EC, chloride and boron limitations should future monitoring indicate the need.

Antidegradation and CEQA Considerations

The permitted discharge is consistent with the anti-degradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution No. 68-16. Best practicable treatment and control for cleanup of groundwater polluted by volatile organic compounds is to remove all pollutants to below applicable quantitation limits. All VOCs are required to be removed to a level below corresponding analytical quantitation limits. Some resulting degradation of the receiving water could occur if constituents were present below the quantitation limit, but such degradation would not be quantifiable. Due to the relatively low EC and TDS values of the receiving water, during periods of unusually limited dilution, some degradation of the receiving water may occur from these pollutants, however, the

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discharge will not cause an exceedance of water quality objectives or cause a significant impact on the beneficial uses of groundwater and surface water. The continued remediation of polluted groundwater, and the use of the treated groundwater for irrigation, both benefit the people of the state.

The action to adopt an NPDES permit is exempt from the provisions of California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.), in accordance with Section 13389 of the California Water Code.

GEA: 6/24/05

Table 1
Summary of Monitoring Results
Influent to GWCS

Sampling Date	1,1-DCE	1,1-DCA	1,2-DCA	1,2-DCP	methylene chloride	1,1,1- TCA	TCE	PCE	Trichloro- fluoromethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
5/16/94 ¹	120	1.2	nd	nd	nd	1.8	0.8	2	nd
6/8/94	120	1.5	nd	nd	nd	1.9	1.2	2.1	nd
7/14/94	110	0.9	nd	nd	nd	1.3	0.9	2.6	nd
8/3/94	110	1	nd	nd	nd	1.3	1	2.6	nd
9/7/04	97	0.9	nd	nd	nd	1.1	0.8	2.2	nd
10/3/94	110	1	nd	nd	nd	1.2	0.8	1.9	nd
11/4/94	92	1	nd	nd	nd	1.1	0.7	1.4	nd
1/11/95	35	nd	nd	nd	nd	nd	nd	1.4	nd
2/2/95	75	nd	nd	nd	nd	nd	nd	nd	nd
3/24/95	39	nd	nd	nd	1.8	nd	nd	1.6	nd
4/25/95	74	1.2	nd	nd	nd	0.8	0.5	0.9	nd
5/18/95	58	1.1	nd	nd	nd	nd	0.6	1.3	nd
6/5/95	85	1.5	nd	nd	nd	nd	0.9	1.3	nd
7/12/95	110	1.3	nd	nd	nd	nd	1.1	1.4	nd
8/18/95	120	1.6	nd	nd	nd	nd	1.1	1.1	nd
9/14/95	67	1.1	nd	nd	nd	0.9	0.7	1.2	nd
10/18/95	41	0.9	nd	nd	nd	nd	nd	1.1	nd
12/12/95	93	1.4	nd	nd	nd	1.1	nd	0.9	nd
1/16/96	81	0.9	nd	nd	nd	0.8	nd	1	nd
2/15/96	65	0.7	nd	nd	nd	0.6	nd	1.1	nd
3/19/96	33	nd	nd	nd	nd	nd	nd	nd	nd
5/5/96	85	1.5	nd	nd	nd	1	1.2	1.6	nd
6/11/96	96	1.4	nd	nd	nd	1.1	nd	1.5	1.2
8/27/96	140	1.8	nd	nd	nd	0.9	0.7	1.1	nd
8/3/97	36	1.6	nd	nd	nd	nd	1.1	nd	nd
9/4/97	38	nd	nd	nd	nd	nd	nd	nd	nd
12/2/97	28	nd	nd	nd	nd	nd	nd	nd	nd
3/23/98	27	nd	nd	nd	nd	1	1.2	1.6	nd
3/30/1998²	nd	nd	27	nd	ns	nd	nd	nd	ns
6/24/98	29	nd	nd	nd	nd	1	1.2	1.6	nd
7/1/98	29	nd	nd	nd	ns	nd	nd	nd	ns
12/24/98	31	nd	nd	nd	ns	nd	nd	nd	ns
2/4/99	44	0.8	nd	nd	ns	nd	0.6	1.3	ns
5/6/99	17	nd	nd	nd	ns	nd	nd	0.6	ns
6/29/99	72	2	0.5	nd	ns	0.8	1.3	2	ns
8/6/99	72	2.5	nd	nd	ns	2.4	1.5	2.2	ns
10/20/99	80	2.3	nd	nd	ns	nd	1.4	2.9	ns
10/29/99	64	1.6	nd	nd	ns	0.6	1.1	1.8	ns
11/30/99	30	0.7	nd	nd	ns	nd	0.5	1	ns
12/17/99	50	1.3	nd	nd	ns	nd	0.8	1.6	ns
2/3/00	38	1.1	nd	nd	ns	nd	0.7	1.3	ns

Table 1
Summary of Monitoring Results
Influent to GWCS

Sampling Date	1,1-DCE	1,1-DCA	1,2-DCA	1,2-DCP	methylene chloride	1,1,1- TCA	TCE	PCE	Trichloro- fluoromethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
2/28/00	36	1.1	nd	nd	ns	nd	0.8	1.5	ns
4/14/00	47	1.2	nd	nd	ns	nd	0.7	1.2	ns
5/3/00	49	1.4	nd	nd	ns	nd	0.9	1.6	ns
6/6/00	65	2.2	nd	nd	ns	0.7	1.5	2	ns
7/11/00	62	2	nd	nd	ns	0.5	1.6	1.9	ns
8/9/00	64	2.2	nd	nd	ns	0.5	1.5	2.3	ns
9/6/00	65	2.2	0.5	nd	ns	0.6	1.5	nd	ns
11/2/00	60	1.7	nd	nd	ns	nd	1.2	1.7	ns
12/20/00	31	1.1	nd	nd	ns	nd	0.6	1.2	ns
2/5/01	36	1.3	nd	nd	ns	nd	0.8	1.3	ns
4/10/01	20	0.1	nd	nd	ns	nd	nd	0.6	ns
5/8/01	45	1.8	nd	nd	ns	nd	1	1.6	ns
6/18/01	37	1.7	nd	nd	ns	nd	1.1	1.6	ns
8/8/01	53	1.7	nd	nd	ns	nd	1.2	1.4	ns
9/26/01	39	1.7	nd	nd	ns	nd	1.1	1.2	ns
10/23/01	56	1.9	nd	nd	ns	nd	1.1	1.4	ns
11/6/01	46	1.4	nd	nd	ns	nd	1	1.2	ns
1/8/02	41	1.4	nd	nd	ns	nd	0.7	1.3	ns
2/5/02	32	1.1	nd	nd	ns	nd	0.7	1.1	ns
5/1/02	42	1.3	nd	nd	ns	nd	0.9	1.3	ns
6/6/02	43	1.2	nd	nd	ns	nd	0.9	1.2	ns
7/19/02	46	1.5	nd	nd	ns	nd	0.9	1.2	ns
11/1/2002³	59	6.1	nd	nd	ns	nd	2.7	3.8	ns
11/1/02	15	nd	nd	nd	ns	nd	nd	nd	ns
1/31/03	62	5.3	0.8	ns	ns	0.7	3.1	4.6	ns
1/31/03	45	1.4	nd	nd	ns	nd	1	1.5	ns
2/11/03	64	5.2	0.6	nd	ns	0.8	2.8	3.8	ns
2/11/03	42	1.2	nd	nd	ns	nd	0.8	1.2	ns
3/28/03	63	5.7	0.5	nd	ns	0.7	2.7	4.5	ns
3/28/03	33	1	nd	nd	ns	nd	0.7	1.3	ns
4/30/03	ns	ns	nd	nd	ns	nd	ns	ns	ns
5/14/03	54	5.2	0.6	nd	ns	nd	2	3.5	ns
5/14/03	35	1.1	nd	nd	ns	nd	0.7	1	ns
5/28/03	ns	ns	nd	nd	ns	nd	ns	ns	ns
7/10/03	49	4.4	0.7	nd	ns	nd	2.2	3.8	ns
7/10/03	35	1.2	nd	nd	ns	nd	0.8	1.2	ns
8/29/03	54	4	0.5	nd	ns	nd	1.8	2.3	ns
8/29/03	36	1	nd	nd	ns	nd	0.6	0.6	ns
9/26/03	48	4.5	0.6	nd	ns	0.8	2.2	3.1	ns
9/26/03	51	1.9	nd	nd	ns	0.6	1.1	1.4	ns
10/28/03	45	4.4	0.6	nd	ns	nd	2.2	2.9	ns

[illegible]

Table 2
Summary of Monitoring Results
Effluent – Treated Groundwater

Sampling Date	1,1-DCE	1,1-DCA	1,2-DCA	1,2-DCP	Methylene chloride	1,1,1-TCA	TCE	PCE
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
5/16/94	nd	nd	nd	nd	nd	nd	nd	nd
6/8/94	nd	nd	nd	nd	nd	nd	nd	nd
7/14/94	nd	nd	nd	nd	nd	nd	nd	nd
8/3/94	nd	nd	nd	nd	nd	nd	nd	nd
9/7/04	nd	nd	nd	nd	nd	nd	nd	nd
10/3/94	nd	nd	nd	nd	nd	nd	nd	nd
11/4/94	nd	nd	nd	nd	nd	nd	nd	nd
1/11/95	nd	nd	nd	nd	nd	nd	nd	nd
2/2/95	nd	nd	nd	nd	nd	nd	nd	nd
3/24/95	nd	nd	nd	nd	1	nd	nd	nd
4/25/95	nd	nd	nd	nd	nd	nd	nd	nd
5/18/95	nd	nd	nd	nd	nd	nd	nd	nd
6/5/95	nd	nd	nd	nd	nd	nd	nd	nd
7/12/95	nd	nd	nd	nd	nd	nd	nd	nd
8/18/95	nd	nd	nd	nd	nd	nd	nd	nd
9/14/95	nd	nd	nd	nd	nd	nd	nd	nd
10/18/95	nd	nd	nd	nd	nd	nd	nd	nd
12/12/95	nd	nd	nd	nd	nd	nd	nd	nd
1/16/96	nd	nd	nd	nd	nd	nd	nd	nd
2/15/96	nd	nd	nd	nd	nd	nd	nd	nd
3/19/96	nd	nd	nd	nd	nd	nd	nd	nd
5/5/96	nd	nd	nd	nd	nd	nd	nd	nd
6/11/96	nd	nd	nd	nd	nd	nd	nd	nd
8/27/96	nd	nd	nd	nd	nd	nd	nd	nd
11/20/96	nd	nd	nd	nd	nd	nd	nd	nd
8/3/97	37	1.5	nd	nd	nd	nd	nd	nd
9/4/97	nd	nd	nd	nd	nd	nd	nd	nd
12/2/97	nd	nd	nd	nd	nd	nd	nd	nd
3/23/98	nd	nd	nd	nd	nd	nd	nd	nd
3/30/98	nd	nd	nd	nd	ns	nd	nd	nd
6/24/98	nd	nd	nd	nd	nd	nd	nd	nd
7/1/98	nd	nd	nd	nd	ns	nd	nd	nd
12/24/98	nd	nd	nd	nd	ns	nd	nd	nd
2/4/99	nd	nd	nd	nd	ns	nd	nd	nd
5/6/99	nd	nd	nd	nd	ns	nd	nd	nd
6/29/99	nd	nd	nd	nd	ns	nd	nd	nd
8/6/99	nd	nd	nd	nd	ns	nd	nd	nd
10/20/99	42	2	nd	nd	ns	nd	1.1	2.1
10/29/99	nd	nd	nd	nd	ns	nd	nd	nd
11/30/99	nd	nd	nd	nd	ns	nd	nd	nd

Table 2
Summary of Monitoring Results
Effluent – Treated Groundwater

Sampling Date	1,1-DCE	1,1-DCA	1,2-DCA	1,2-DCP	Methylene chloride	1,1,1-TCA	TCE	PCE
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
12/17/99	nd	nd	nd	nd	ns	nd	nd	nd
2/3/00	nd	nd	nd	nd	ns	nd	nd	nd
2/28/00	nd	nd	nd	nd	ns	nd	nd	nd
4/14/00	nd	nd	nd	nd	ns	nd	nd	nd
5/3/00	nd	nd	nd	nd	ns	nd	nd	nd
6/6/00	nd	nd	nd	nd	ns	nd	nd	nd
7/11/00	nd	nd	nd	nd	ns	nd	nd	nd
8/9/00	nd	nd	nd	nd	ns	nd	nd	nd
9/6/00	nd	nd	nd	nd	ns	nd	nd	nd
11/2/00	nd	nd	nd	nd	ns	nd	nd	nd
12/20/00	nd	nd	nd	nd	ns	nd	nd	nd
2/5/01	nd	nd	nd	nd	ns	nd	nd	nd
4/10/01	nd	nd	nd	nd	ns	nd	nd	nd
5/8/01	nd	nd	nd	nd	ns	nd	nd	nd
6/18/01	nd	nd	nd	nd	ns	nd	nd	nd
8/8/01	nd	nd	nd	nd	ns	nd	nd	nd
9/26/01	nd	nd	nd	nd	ns	nd	nd	nd
10/23/01	nd	nd	nd	nd	ns	nd	nd	nd
11/6/01	nd	nd	nd	nd	ns	nd	nd	nd
1/8/02	nd	nd	nd	nd	ns	nd	nd	nd
2/5/02	nd	nd	nd	nd	ns	nd	nd	nd
5/1/02	nd	nd	nd	nd	ns	nd	nd	nd
6/6/02	nd	nd	nd	nd	ns	nd	nd	nd
7/19/02	nd	nd	nd	nd	ns	nd	nd	nd
11/1/02	nd	nd	nd	nd	ns	nd	nd	nd
11/1/02	1	nd	nd	nd	ns	nd	nd	nd
11/7/02	0.9	nd	nd	nd	ns	nd	nd	nd
11/7/02	36	5.1	nd	nd	ns	nd	2.1	2.6
11/7/02	7.2	2.3	nd	nd	ns	nd	0.5	0.5
11/7/02	nd	nd	nd	nd	ns	nd	nd	nd
11/20/02	nd	nd	nd	nd	ns	nd	nd	nd
11/25/02	nd	nd	nd	nd	ns	nd	nd	nd
12/3/02	1.1	0.5	nd	nd	ns	nd	nd	nd
12/10/02	0.7	nd	nd	nd	ns	nd	0.7	nd
1/31/03	ns	nd	nd	nd	ns	nd	ns	nd
2/11/03	nd	nd	nd	nd	ns	nd	nd	nd
3/28/03	nd	nd	nd	nd	ns	nd	nd	nd
4/30/03	0.9	nd	nd	nd	ns	nd	nd	nd
5/14/03	1.1	nd	nd	nd	ns	nd	nd	nd
5/28/03	1.2	nd	nd	nd	ns	nd	nd	nd

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Table 3
Summary of RPA

Constituent / Parameter	Objective or Criteria Addressed	Source	Numeric Objective or Criteria	Units	MEC	N ¹	RP? ²	Date ³	Data Source ⁶
Arsenic (2)	Chemical Constituents	California Primary MCL	50	ug/L	2	2	I ⁵	10/23/01	SIP
		USEPA Primary MCL	10	ug/L					
		Water Quality for Agriculture (Ayers & Westcot)	100	ug/L					
	CTR - aquatic life	California Toxics Rule (USEPA) Chronic	150	ug/L					
		California Toxics Rule (USEPA) Acute	340	ug/L					
Chromium (III) (5A)	Toxicity - humans	USEPA IRIS Reference Dose (c)	10,500	ug/L	8	2	I ⁵	5/8/01	SIP
	Chemical Constituents	California Primary MCL	50	ug/L					
	NTR - aquatic life	National Toxics Rule (USEPA) Chronic	523	ug/L					
		National Toxics Rule (USEPA) Acute	4,386	ug/L					
Chromium (VI) (5B)	Chemical Constituents	Water Quality for Agriculture (Ayers & Westcot)	100	ug/L	2.7	2	I ⁵	10/23/01	SIP
		California Primary MCL	50	ug/L					
	Toxicity - humans	USEPA IRIS Reference Dose (c)	21	ug/L					
	CTR - aquatic life	California Toxics Rule (USEPA) Chronic	11	ug/L					
		California Toxics Rule (USEPA) Acute	16	ug/L					
1,1-DCA (28)	Chemical Constituents	California Primary MCL	5	ug/L	15.8	183	Y	12/04/00	RWD
	Toxicity - humans	Cal/EPA Cancer Potency Factor as a drinking water level (b)	6.1	ug/L					
1,2-DCA (29)	Chemical Constituents	California Primary MCL	0.5	ug/L	27	185	Y	3/30/98	MRP
	Tastes and Odors	Odor threshold (Amoore and Hautala)	7000	ug/L					
	Toxicity - aquatic life	USEPA National Ambient W Q Criteria / chronic tox info	20,000	ug/L					
	NTR - humans	National Toxics Rule (USEPA) for sources of drinking water	0.38	ug/L					
1,1-DCE (30)	Chemical Constituents	California Primary MCL	6	ug/L	140	179	Y	8/27/96	MRP
	Tastes and Odors	Odor threshold (Amoore and Hautala)	1500	ug/L					
	NTR - humans	National Toxics Rule (USEPA) for sources of drinking water	0.057	ug/L					
Mercury (8)	Chemical Constituents	California Primary MCL	2	ug/L	0.012	2	I ⁵	10/23/01	SIP
	Toxicity - aquatic life	USEPA National Ambient W Q Criteria	0.77	ug/L					

Table 3
Summary of RPA

Constituent / Parameter	Objective or Criteria Addressed	Source	Numeric Objective or Criteria	Units	MEC	N ¹	RP? ²	Date ³	Data Source ⁶
		Chronic							
		USEPA National Ambient W Q Criteria Acute	1.4	ug/L					
	CTR - humans	California Toxics Rule (USEPA) for sources of drinking water	0.05	ug/L					
Selenium (10)	Chemical Constituents	California Primary MCL	50	ug/L	2	2	I ⁵	5/8/01	SIP
		Water Quality for Agriculture (Ayers & Westcot)	20	ug/L					
	Toxicity - humans	USEPA IRIS Reference Dose (c)	35	ug/L					
	NTR - aquatic life	National Toxics Rule (USEPA) Chronic	5	ug/L					
		National Toxics Rule (USEPA) Acute	20	ug/L					
PCE (38)	Chemical Constituents	California Primary MCL	5	ug/L	10.1	183	Y	12/04/00	RWD
	Tastes and Odors	Odor threshold (Amoore and Hautala)	170	ug/L					
	Toxicity - aquatic life	USEPA National Ambient W Q Criteria / chronic tox info	840	ug/L					
	NTR - humans	National Toxics Rule (USEPA) for sources of drinking water	0.8	ug/L					
1,1,1-TCA (41)	Chemical Constituents	California Primary MCL	200	ug/L	4.4	184	N	12/04/00	RWD
	Tastes and Odors	Odor threshold (Amoore and Hautala)	970	ug/L					
	Toxicity - humans	USEPA MCL Goal for drinking water & health advisory	200	ug/L					
TCE (43)	Chemical Constituents	California Primary MCL	5	ug/L	8.3	182	Y	12/04/00	RWD
	Tastes and Odors	Odor threshold (Amoore and Hautala)	310	ug/L					
	Toxicity - aquatic life	USEPA National Water Quality Aquatic Toxicity Information	21,900	ug/L					
	CTR - humans	California Toxics Rule (USEPA) for sources of drinking water	2.7	ug/L					
Methylene Chloride (36)	CTR	CTR Sources of Drinking	4.7	ug/L	1.8	57	N	3/24/95	MRP
		California Primary MCL	5	ug/L					
Trichlorofluoromethane (non-ctr)	Chemical Constituents	California Primary MCL	150	ug/L	1.2	29	N	6/11/96	MRP
Chloroform (26)	Chemical Constituents	California Primary MCL (total	100	ug/L	0.5	81	N	12/04/00	RWD

Table 3
Summary of RPA

Constituent / Parameter	Objective or Criteria Addressed	Source	Numeric Objective or Criteria	Units	MEC	N ¹	RP? ²	Date ³	Data Source ⁶
		trihalomethanes)							
		USEPA Primary MCL (total trihalomethanes)	80	ug/L					
	Tastes and Odors	Odor threshold (Amoore and Hautala)	2,400	ug/L					
	Toxicity - humans	Cal/EPA Cancer Potency Factor as a drinking water level (b)	1.1	ug/L					
	Toxicity - aquatic life	USEPA National Ambient W Q Criteria / chronic toxicity info	1,240	ug/L					
Zinc (13)	Chemical Constituents	California Secondary MCL	5000	ug/L	67	3	I ⁵	12/04/00	RWD
		Water Quality for Agriculture (Ayers & Westcot)	2000	ug/L					
	Tastes and Odors	California Secondary MCL	5000	ug/L					
	Toxicity - humans	USEPA IRIS Reference Dose (c)	2100	ug/L					
	CTR - aquatic life	California Toxics Rule (USEPA) Chronic	312.5	ug/L					
		California Toxics Rule (USEPA) Acute	312.5	ug/L					
1,1,2 TCA (42)	Chemical Constituents	California Primary MCL	5	ug/L	0.16	51	N	12/04/00	RWD
	Toxicity - aquatic life	USEPA National Ambient W Q Criteria / chronic tox info	9400	ug/L					
	NTR - humans	National Toxics Rule (USEPA) for sources of drinking water	0.6	ug/L					
nitrate	Chemical Constituents	California Primary MCL	10,000	ug/L	13,000	1	I ⁵	12/04/00	RWD
	Toxicity - humans	California Public Health Goal for Drinking Water	10,000	ug/L					
sulfate	Chemical Constituents	California Secondary MCL (Recommended level)	250	mg/L	28	1	I ⁵	12/04/00	RWD
		California Secondary MCL (upper level)	500	mg/L					
	Tastes and Odors	California Secondary MCL (Recommended level)	250	mg/L					
	Toxicity - humans	USEPA Proposed MCL Goal	500	mg/L					
Barium	Chemical Constituents	California Primary MCL	1000	ug/L	240	1	I ⁵	12/04/00	RWD
	Toxicity - humans	USEPA IRIS Reference Dose (c)	490	ug/L					
Magnesium	n/a	n/a			38	1	I ⁵	12/04/00	RWD

- 1 N = number of sample results reviewed and analyzed for the RPA
- 2 RP= Reasonable Potential when comparing MEC or Projected MEC to most stringent objective or criteria
- 3 Date of sampling event that reported MEC
- 4 Data source of MEC, where:
 - RWD = Report of Waste Discharge
 - SIP = Special SIP Monitoring Data
 - MRP = Monitoring and Reporting Program
- 5 I = Indeterminate based on limited data. Additional monitoring is required through Order.

Table 4
Summary Effluent Limit
Calculation and Comparison⁸

		Applicable Criteria			Effluent Limits based on Human Health			Effluent Limits based on Aquatic Life				
	units	Acute	Chronic	Human Health	ECA ¹	Average Monthly ² (ug/L)	Maximum Daily ³ (ug/L)	LTA _{acute} ⁴	LTA _{chronic} ⁵	Minimum LTA	Maximum Daily ⁷ (ug/L)	Average Monthly ⁸ (ug/L)
CTR CONSTITUENTS												
Tetrachloroethylene (PCE)	ug/L	n/a	n/a	0.8	0.8	0.8	1.61	n/a	n/a	n/a	n/a	n/a
1,1-DCA	ug/L	n/a	n/a	5	5	5	10.05	n/a	n/a	n/a	n/a	n/a
1,2-DCA	ug/L	n/a	n/a	0.38	0.38	0.38	0.76	n/a	n/a	n/a	n/a	n/a
1,1-DCE	ug/L	n/a	n/a	0.057	0.057	0.057	0.11	n/a	n/a	n/a	n/a	n/a
1,1,1-TCA	ug/L	n/a	n/a	200	200	200	402.00	n/a	n/a	n/a	n/a	n/a
1,1,2-TCA	ug/L	n/a	n/a	0.6	0.6	0.6	1.21	n/a	n/a	n/a	n/a	n/a
Chloroform	ug/L	2890	1240	1.1	1.1	1.1	2.21	927.69	653.48	653.48	2032.3228	1012.894
TCE	ug/L	n/a	n/a	2.7	2.7	2.7	5.43	n/a	n/a	n/a	n/a	n/a
Methylene Chloride	ug/L	n/a	n/a	2.5	4.7	4.7	9.5	n/a	n/a	n/a	n/a	n/a
NON-CTR CONSTITUENTS												
Trichlorofluoromethane	ug/L	n/a	n/a	150	150	150	301.50	n/a	n/a	n/a	n/a	n/a

¹ ECA = Effluent Concentration Allowance = Most stringent water quality objective (WQO) or criteria when dilution is not considered

² For Human Health the Average Monthly Effluent Limit (AMEL) = ECA

³ For Human Health the Maximum Daily Effluent Limit (MDEL) = AMEL * (multiplier) for this Order the multiplier is 2.01 using a default CV=0.6

⁴ LTA_{acute} = ECA * (multiplier) for this Order the multiplier is 0.321

⁵ LTA_{chronic} = ECA * (multiplier) for this Order the multiplier is 0.527

⁶ For Aquatic Life the Average Monthly Effluent Limit (AMEL) = Minimum LTA * (multiplier) for this Order the Multiplier is 3.11 assuming default n=4 and CV=0.6

⁷ For Aquatic Life the Maximum Daily Effluent Limit (MDEL) = Minimum LTA * (multiplier) for this Order the Multiplier is 1.55 assuming default n=4 and CV=0.6

⁸ SIP, Section 1.4 Effluent Limit Calculation Equations and definitions provided on page two or this table.

Table 4
Summary Effluent Limit
Calculation and Comparison⁸

Section 1.4 of the SIP equations for determining Effluent Limitations:

$$\begin{aligned} \text{ECA} &= C + D (C - B) \text{ when } C > B, \text{ and} \\ \text{ECA} &= C \text{ when } C \leq B \end{aligned}$$

Where:

ECA – Effluent concentration allowance

C = the priority pollutant criterion/objective or WQO/WQC;

D = the dilution credit (for this analysis D=0); and

B = the ambient background concentration

$$\text{AMEL}_{\text{human health}} = \text{ECA}$$

$$\text{MDEL}_{\text{human health}} = \text{ECA} * \text{MDEL/AMEL multiplier (from Table 2)}$$

$$\text{LTA}_{\text{acute}} = \text{ECA}_{\text{acute}} * \text{ECA multiplier}_{\text{acute99}} \text{ (from Table 1)}$$

$$\text{LTA}_{\text{chronic}} = \text{ECA}_{\text{chronic}} * \text{ECA multiplier}_{\text{chronic99}} \text{ (from Table 1)}$$

$$\text{AMEL}_{\text{aquatic life}} = \text{LTA} * \text{AMEL multiplier}_{95} \text{ (from Table 2) utilizing most stringent LTA}$$

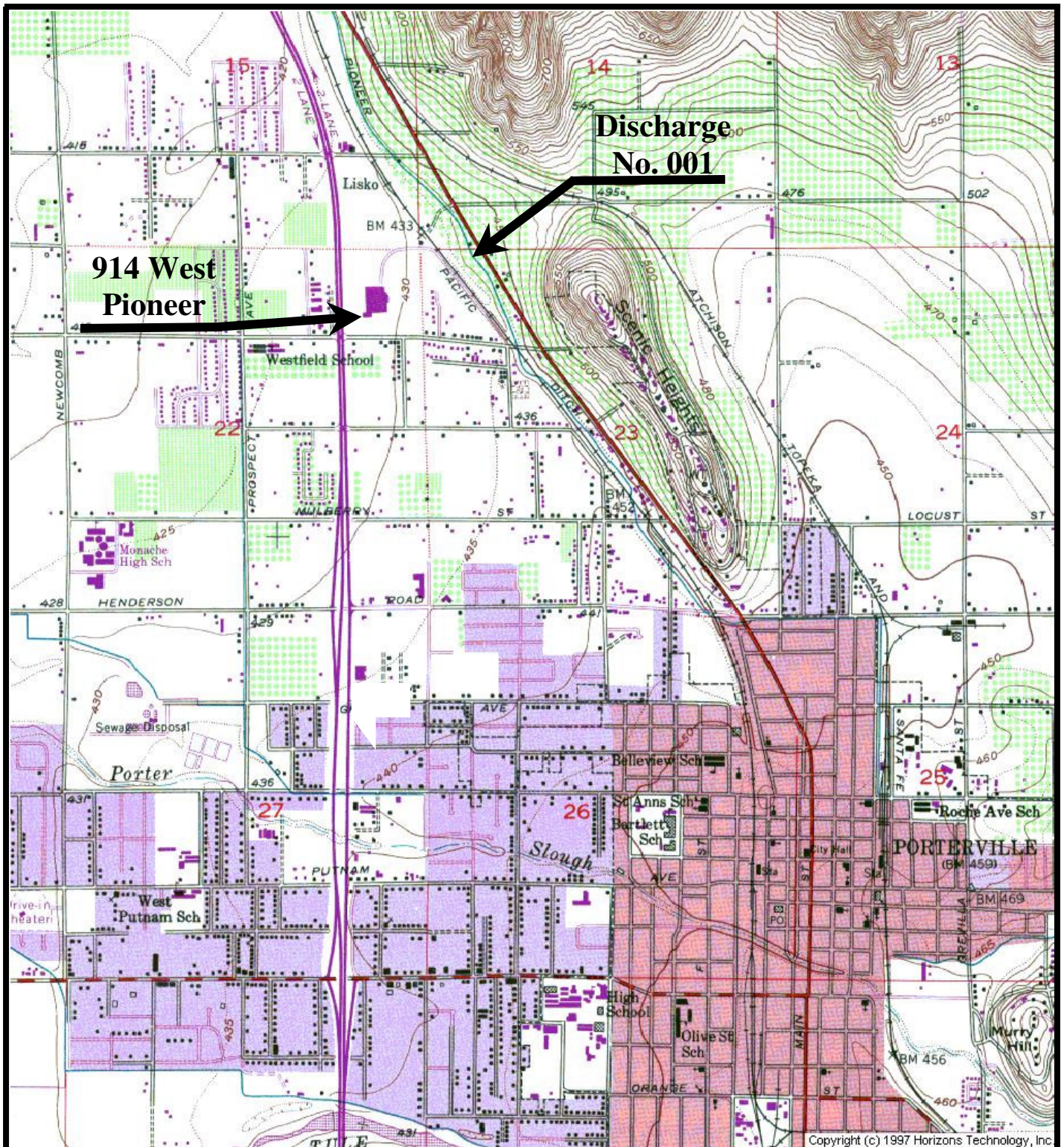
$$\text{MDEL}_{\text{aquatic life}} = \text{LTA} * \text{MDEL multiplier}_{99} \text{ (from Table 2) utilizing most stringent LTA}$$

Where:

LTA=Long Term Average

AMEL= Average Monthly Effluent Limitation

MDEL=Maximum Daily Effluent Limitation



N

Not to scale

ATTACHMENT A Vicinity Map

**ROCKWELL INTERNATIONAL CORPORATION AND
PORTERVILLE UNIFIED SCHOOL DISTRICT**
WASTE DISCHARGE REQUIREMENTS
ORDER NO. R5-XX-XX
TULARE COUNTY

Attachment B
Required Minimum Levels (MLs)
Or
Criterion Quantitation Limit

CTR #	Constituent	CAS Number	Criterion Quantitation Limit (ug/L or noted)	Suggested Test Methods
Inorganic				
1	Antimony	7440360	5	EPA 6020/200.8
2	Arsenic	7440382	1	EPA 1632
3	Beryllium	7440417	1	EPA 6020/200.8
4	Cadmium	7440439	0.25	EPA 1638/200.8
5a	Chromium (total)	7440473	2	EPA 6020/200.8
5b	Chromium (VI)	18540299	5	EPA 7199/1636
6	Copper	7440508	0.5	EPA 6020/200.8
7	Lead	7439921	0.5	EPA 1638
8	Mercury	7439976	0.0005	EPA 1669/1631
9	Nickel	7440020	5	EPA 6020/200.8
10	Selenium	7782492	5	EPA 6020/200.8
11	Silver	7440224	1	EPA 6020/200.8
12	Thallium	7440280	1	EPA 6020/200.8
13	Zinc	7440666	10	EPA 6020/200.8
14	Cyanide	57125	5	EPA 9012A
15	Asbestos	1332214	0.2 MFL >10um	EPA/600/R-93/116(PCM)
Volatile Organics				
17	Acrolein	107028	5	EPA 8260B
18	Acrylonitrile	107131	2	EPA 8260B
19	Benzene	71432	0.5	EPA 8260B
20	Bromoform	75252	0.5	EPA 8260B
21	Carbon tetrachloride	56235	0.5	EPA 8260B
22	Chlorobenzene (mono chlorobenzene)	108907	0.5	EPA 8260B
23	Dibromochloromethane	124481	0.5	EPA 8260B
24	Chloroethane	75003	0.5	EPA 8260B
25	2- Chloroethyl vinyl ether	110758	1	EPA 8260B
26	Chloroform	67663	0.5	EPA 8260B
27	Dichlorobromomethane	75274	0.5	EPA 8260B
28	1,1-Dichloroethane	75343	0.5	EPA 8260B
29	1,2-Dichloroethane	107062	0.5	EPA 8260B

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CTR #	Constituent	CAS Number	Criterion Quantitation Limit (ug/L or noted)	Suggested Test Methods
30	1,1-Dichloroethene	75354	0.5	EPA 8260B
31	1,2-Dichloropropane	78875	0.5	EPA 8260B
32	1,3-Dichloropropene	542756	0.5	EPA 8260B
33	Ethylbenzene	100414	0.5	EPA 8260B
34	Bromomethane	74839	1	EPA 8260B
35	Chloromethane	74873	0.5	EPA 8260B
36	Dichloromethane	75092	0.5	EPA 8260B
37	1,1,2,2-Tetrachloroethane	79345	0.5	EPA 8260B
38	Tetrachloroethene	127184	0.5	EPA 8260B
39	Toluene	108883	0.5	EPA 8260B
40	trans-1,2-Dichloroethylene	156605	0.5	EPA 8260B
41	1,1,1-Trichloroethane	71556	0.5	EPA 8260B
42	1,1,2-Trichloroethane	79005	0.5	EPA 8260B
43	Trichloroethene	79016	0.5	EPA 8260B
44	Vinyl chloride	75014	0.5	EPA 8260B
75	1,2-Dichlorobenzene	95501	0.5	EPA 8260B
76	1,3-Dichlorobenzene	541731	0.5	EPA 8260B
77	1,4-Dichlorobenzene	106467	0.5	EPA 8260B
88	Hexachlorobenzene	118741	1	EPA 8260B
89	Hexachlorobutadiene	87683	1	EPA 8260B
91	Hexachloroethane	67721	1	EPA 8260B
94	Naphthalene	91203	10	EPA 8260B
101	1,2,4-Trichlorobenzene	120821	0.5	EPA 8260B
Semi-volatile Organics				
45	2-Chlorophenol	95578	2	EPA 8270C
46	2,4-Dichlorophenol	120832	1	EPA 8270C
47	2,4-Dimethylphenol	105679	2	EPA 8270C
48	4,6-Dinitro-2-methylphenol	534521	10	EPA 8270C
49	2,4-Dinitrophenol	51285	5	EPA 8270C
50	2-Nitrophenol	25154557	10	EPA 8270C
51	4-Nitrophenol	100027	5	EPA 8270C
52	4-Chloro-3-methylphenol	59507	5	EPA 8270C
53	Pentachlorophenol	87865	0.2	EPA 8270C

Attachment B
Required Minimum Levels (MLs)
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CTR #	Constituent	CAS Number	Criterion Quantitation Limit (ug/L or noted)	Suggested Test Methods
54	Phenol	108952	1	EPA 8270C
55	2,4,6-Trichlorophenol	88062	10	EPA 8270C
56	Acenaphthene	83329	1	EPA 8270C
57	Acenaphthylene	208968	10	EPA 8270C
58	Anthracene	120127	10	EPA 8270C
59	Benzidine	92875	5	EPA 8270C
60	1,2-Benzanthracene	56553	5	EPA 8270C
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	0.1	EPA 8270C
62	3,4-Benzofluoranthene	205992	10	EPA 8270C
63	Benzo(g,h,i)perylene	191242	5	EPA 8270C
64	Benzo(k)fluoranthene	207089	2	EPA 8270C
65	Bis(2-chloroethoxy) methane	111911	5	EPA 8270C
66	Bis(2-chloroethyl) ether	111444	1	EPA 8270C
67	Bis(2-chloroisopropyl) ether	39638329	10	EPA 8270C
68	Bis(2-ethylhexyl) phthalate	117817	3	EPA 8270C
69	4-Bromophenyl phenyl ether	101553	10	EPA 8270C
70	Butyl benzyl phthalate	85687	10	EPA 8270C
71	2-Chloronaphthalene	91587	10	EPA 8270C
72	4-Chlorophenyl phenyl ether	7005723	5	EPA 8270C
73	Chrysene	218019	5	EPA 8270C
74	Dibenzo(a,h)-anthracene	53703	0.1	EPA 8270C
78	3,3'-Dichlorobenzidine	91941	5	EPA 8270C
79	Diethyl phthalate	84662	2	EPA 8270C
80	Dimethyl phthalate	131113	2	EPA 8270C
81	Di-n-butylphthalate	84742	10	EPA 8270C
82	2,4-Dinitrotoluene	121142	5	EPA 8270C
83	2,6-Dinitrotoluene	606202	5	EPA 8270C
84	Di-n-octylphthalate	117840	10	EPA 8270C
85	1,2-Diphenylhydrazine	122667	1	EPA 8270C
86	Fluoranthene	206440	10	EPA 8270C
87	Fluorene	86737	10	EPA 8270C
90	Hexachlorocyclopentadiene	77474	1	EPA 8270C
92	Indeno(1,2,3-c,d)pyrene	193395	0.05	EPA 8270C

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CTR #	Constituent	CAS Number	Criterion Quantitation Limit (ug/L or noted)	Suggested Test Methods
93	Isophorone	78591	1	EPA 8270C
95	Nitrobenzene	98953	10	EPA 8270C
96	N-Nitrosodimethylamine	62759	5	EPA 8270C
97	N-Nitrosodi-n-propylamine	621647	5	EPA 8270C
98	N-Nitrosodiphenylamine	86306	1	EPA 8270C
99	Phenanthrene	85018	5	EPA 8270C
100	Pyrene	129000	10	EPA 8270C
Pesticides - PCBs				
102	Aldrin	309002	0.005	EPA 8081A
103	alpha-Hexachlorocyclohexane (BHC)	319846	0.01	EPA 8081A
104	beta-Hexachlorocyclohexane	319857	0.005	EPA 8081A
105	Lindane (gamma-Hexachlorocyclohexane)	58899	0.019	EPA 8081A
106	delta-Hexachlorocyclohexane	319868	0.005	EPA 8081A
107	Chlordane	57749	0.1	EPA 8081A
108	4,4'-DDT	50293	0.01	EPA 8081A
109	4,4'-DDE	72559	0.01	EPA 8081A
110	4,4'-DDD	72548	0.02	EPA 8081A
111	Dieldrin	60571	0.01	EPA 8081A
112	alpha-Endosulfan	959988	0.02	EPA 8081A
113	beta-Endosulfan	33213659	0.01	EPA 8081A
114	Endosulfan sulfate	1031078	0.05	EPA 8081A
115	Endrin	72208	0.01	EPA 8081A
116	Endrin Aldehyde	7421934	0.01	EPA 8081A
117	Heptachlor	76448	0.01	EPA 8081A
118	Heptachlor Epoxide	1024573	0.01	EPA 8081A
119	PCB-1016	12674112	0.5	EPA 8082
120	PCB-1221	11104282	0.5	EPA 8082
121	PCB-1232	11141165	0.5	EPA 8082
122	PCB-1242	53469219	0.5	EPA 8082
123	PCB-1248	12672296	0.5	EPA 8082
124	PCB-1254	11097691	0.5	EPA 8082
125	PCB-1260	11096825	0.5	EPA 8082
126	Toxaphene	8001352	0.5	EPA 8081A

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CTR #	Constituent	CAS Number	Criterion Quantitation Limit (ug/L or noted)	Suggested Test Methods
16	2,3,7,8-TCDD (Dioxin)	1746016	5.00E-06	EPA 8290 (HRGC) MS